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PUBLIC POLICY,

AND

POLITE LITERATURE.

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THE

WESTERN JOURNAL

and Civilian.

VOL. XII. July, 1854. No. IV.

ARTICLE I.

The Interest Laws of Missouri.

At an early period in the history of the Western Journal, we published our views touchiug a variety of subjects relating to the public economy of the State of Missouri. Several of the leading measures which we then discussed and advocated, have since been adopted by the General Assembly; and we are happy in the belief that when matured their fruits will fully vindicate the wisdom and patriotism which controlled the councils of the State upon those occasions. Others, however, have been regarded by the Legislature with less favor; and though some of them have been several times rejected, yet so strong is our conviction of their soundness and utility that we feel compelled by a sense of social duty to urge them again upon the consideration of the people.

Of all the measures which we have advocated, none have met with more violent and decided opposition than the proposition to repeal the law limiting the rate of interest. At this we were surprised and disappointed; for when it is remembered that the laws against usury, and also those limiting the rate of interest, are mostly the offspring of ignorance, tyrany and superstition originating in a social condition differing in almost all respects from that of the people of this country at the present day; and, that those laws have been gradually yielding to the light and progressive intelligence of modern civilization, it must be regarded as a curious fact that in the year 1847 the State of Missouri, making a retrograde movement, should reduce the rate of interest from ten to six per cent. per annum. Missouri was a new State possessing an incalculable amount of natural wealth which had long remained undeveloped for the want of money. Remote from the great commercial

emporiums, her exchanges were effected at great cost to both producers and consumers : she needed money to open her mines, to build up and establish manufactures, to commence and carry on a system of public improvements, to facilitate the operations of commerce, to invite immigration, and give encouragement to industry in all its branches.

This state of things being perceived and the scarcity of money deplored, it was natural that a remedy should have been sought by the people; but who except a Missouri legislator could have imagined that that remedy was to be found in an act of the General Assembly reducing the rate of interest? Is it reasonable to conclude that the General Assembly of Missouri was composed of men so totally ignorant of the obvious principles of public economy as not to perceive that by reducing the price of money they would drive it from the market, and that the scarcity occasioned by the act would augment the necessities of the community and enable the grinding money dealer to exact ruinous prices of the needy borrower as a premium for evading the law? Surely such obvious consequences must have occurred to the mind of any individual possessing sufficient intelligence to have authorized his admission into the councils of the State. But whether the interest law of 1847 resulted from ignorance of the principles of public economy, or whether the ancient prejudices against usury and usurers were insiduously brought to bear upon the subject to promote the ends of individuals, it may be confidently affirmed that with accidental exceptions the money lender who evades the law is the only individual in the community benefitted by its enactment.

This assertion is abundantly verified by the financial operations of our people since the passage of the present law regulating interest on money. The average rate of interest paid on money borrowed upon bond and mortgage is now at least fifty per cent. higher than it was in the year 1846; and it is a fact well known to all men acquainted with business in St. Louis, at that time, that the interest on loans upon real estate securities advanced materially immediately after the passage of the act.

The effects produced in Missouri by the adoption of this policy is in accordance with the history of the usury laws of every other country of which we have any knowledge, except perhaps that of the Jewish nation. But it is to be observed that there was a principle of political economy involved in the Jewish law calculated to

produce consequences directly the reverse of one of the principal effects of the Missouri statute. The Jews were allowed to bargain for and exact any rate of interest from a stranger; by this provision in their law a system of "free trade" in the precious metals was established between them and other nations; which was eminently calculated to bring money into their country. Under the operations of the Jewish institutions the interest realized from the loan of their capital was so much taken from the wealth of other nations and added to their own. But it is far otherwise in our case; for while the Missouri law is calculated to prevent money from coming into the State, the exorbitant rate of interest realized by the capitalist is taken from the hard earnings of our own people, who if they borrow at all are compelled to pay the usurer his own price for violating or evading the laws of the State.

In all Mahomedan countries the coran forbids the taking of any interest for the use of money. But we learn from good authority that the market rate of interest in those countries is from ten to twenty times higher than in Europe.*

By the old Roman law of the twelve tables, the rate of interest allowed as legitimate was the *usura centesima*, which was strictly one per cent. a month; and has been supposed by some to have amounted to twelve, by others to ten per cent. in the year. We are informed that "the Roman laws against excessive usury were frequently renewed, and constantly evaded. The same principle, sanctioned by mistaken religious opinions, pervaded the laws of all countries in which the civil jurisprudence prevailed.†

In England, anterior to the reign of Henry VIII., all loans of money upon interest were regarded as usurious and criminal. In 1546 the first law was passed to legalize the taking of interest, which was then fixed at the rate of ten per cent per annum; but the prejudices against usury remained so strong that the law was repealed in the following reign. In 1571, during the reign of Elisabeth, an act was passed violently condemning all *usury*; but permitting ten per cent. *interest* to be paid. In noticing the passing of this act, Hume remarks that "by a lucky accident in language, which has great effect on men's ideas, the invidu-

* Cyclopaedia Britanica, vol. 12, title Interest.
Brande's Encyclopaedia of Science, Literature and Art.

ous word *usury*, which formerly meant the taking of any interest for money, came now to express, only the taking of exorbitant and illegal interest."

In 1624, interest was reduced to eight per cent.; in 1672, in the reign of Charles II., it was reduced to six per cent., and finally to five per cent., in 1713. But the many plans devised to evade the law afford strong evidence that the rate of interest allowed by the last statute was far below the maximum market value. One of the methods resorted to in England for the purpose of evading the statute was the sale of annuities which in time became a serious evil; and in the year 1818, a committee was appointed by the House of Commons to investigate and make report upon the usury laws then existing.

According to a custom of parliament, the adoption of which we respectfully recommend to the legislature of Missouri, individuals whose position and pursuits qualified them to enlighten the committee in respect to the subject before it were examined, and their statements and opinions embodied in its report to the House. Mr. Sugden, an eminent lawyer, stated before the committee that

"When the market rate of interest rose above the legal rate the landed proprietor was compelled to resort to some shift to evade the usury laws. For this purpose, he informed the committee he had known annuities granted for *three* lives, at ten per cent. upon fee-simple estates unincumbered, and of great annual value in a register county. He had also known annuities granted for *four* lives, and more would have been added, but for the danger of equity setting aside the transaction on account of the inadequacy of the consideration. Latterly many annuities were granted for a term of years certain, not depending upon lives. On being asked whether, if there were no laws limiting the rate of interest, better terms could or could not have been obtained, Mr. Sugden answered, I am decidedly of opinion that *better terms* could have been obtained, for there is a stigma which attaches to men who lend money upon annuities that drives all respectable men out of market. Nothing, Mr. Sugden added, *short of a repeal of the usury laws* can put a stop to the abuses which attend grants of annuities: they strongly encourage a spirit of gambling; for as the repayment of the money lent cannot be enforced, and the annuity is granted upon a contingency, the borrower too frequently neglects to provide for the payment of the loan, and trusts to chance for the determination of the annuity."

"The laws against usury, says Mr. Holland, partner of the house of Baring, Brothers and Company, and one of the best informed merchants of tho country, drive men in distress, or in want of money, to much more disastrous modes of raising it than they

would adopt if no usury laws existed. The land owner requires money to increase his live stock, or improve his land, or for any other purpose, at a period when the government is borrowing money at above five per cent., no one will then lend to the land-owner because his money is worth more to him than the law allows him to take; the land owner must, therefore, either give up his improvements, or borrow money on annuity interests, on much more disadvantageous terms than he could have done if no law existed against usury. The man in trade, in want of money for an unexpected demand, or disappointed in his returns, must fulfill his engagements, or forfeit his credit. He might have borrowed money at six per cent., but the law allows no one to lend it to him, and he must sell some of the commodity he holds, at a reduced price, in order to meet his engagements. For example, he holds sugar which is worth 80*s.*, but he is compelled to sell it immediately at 70*s.* to the man who will give him cash for it, and thus actually borrows money at twelve and a half per cent., which had the law allowed to him, he might have borrowed from a money dealer at six per cent."

"It is known to every merchant, that *cases of this kind are common occurrences in every commercial town, and more especially in the metropolis.* A man in distress for money pays more interest, owing to the usury laws, than he would if no such laws existed; because now he is obliged to go to some of the disreputable money lenders to borrow, as he knows the respectable money lender will not break the laws of his country. The disreputable money lender knows that he has the *ordinary risk* of his debtor to incur in lending his money, and he has further to encounter the *penalty of the law*, for both of which risks the borrower must pay. If no usury laws existed, in common cases, and when a person is respectable, he might obtain a loan from the respectable money lender, who would then only have to calculate his ordinary risk, and the compensation for the use of the money."

The appendix to the report of the committee contains much other testimony corroborating the statements and opinions of Mr. Sugden and Mr. Holland; and the committee admitting the force of the evidence agreed to the following resolutions:

"1st. That it is the opinion of this committee that the laws regulating or restraining the rate of interest have been extensively evaded, and have failed of the effect of imposing a maximum on such rate; and that, of late years, from the constant effect of the market rate of interest above the rate limited by law, they have added to the expenses incurred by borrowers on real security, and that such borrowers have been compelled to resort to the mode of granting annuities on lives; a mode which has been made a cover for obtaining a higher rate of interest than the rate limited by law, and has further subjected the borrowers to enormous charges, or

forced them to make very disadvantageous sales of their estates."

"2d. That it is the opinion of this committee, that the construction of such laws, as applicable to the transactions of commerce at present carried on, have been attended with much uncertainty as to the legality of many transactions of frequent occurrence, and consequently been productive of much embarrassment and litigation."

The committee conclude their report by recommending a repeal of the usury laws; but notwithstanding their recommendation and the clear and satisfactory nature of the evidence on which it was founded, the popular prejudice was so strong against their repeal, that the measure failed, and the law remained unchanged until the year 1833. The first inroad upon this relic of a barbarous age was made by a provision in the act renewing the charter of the bank of England; by which all bills of exchange and promissory notes, not having more than three months to run previous to their maturity were excepted from the operations of the usury law, and might be discounted at any rate of interest agreed on by the parties. This act sapped the foundation of the usury laws of England, and opened the way for the introduction of a more rational and just policy. In 1837, by the act I. Vic. c. 70, the provisions respecting usury contained in the act of 1833, were extended to all such mercantile instruments not having more than twelve months to run before they are due. And by 3. and 4. Vic. c. 83, simple loans above £10, not secured by real estate, were also excepted from the statute of usury.

And here let us observe that while the people of Great Britain were extricating themselves, step by step, from an unwise policy which originated in superstition, and in ignorance of the true principles of political economy, the public mind in the State of Missouri was undergoing a change which prepared it in 1847 for the adoption of a barbarism which had been condemned and repudiated not only by theoretical writers but by the best practical economists of every civilized country.

But it may be said, the modification of the usury laws of England is an experiment of too recent date to establish the fact that usury laws can be abolished in a State without raising the market rate of interest.

On this as on all subjects of legislation, the British parliament proceded with deliberation and much caution. Fifteen years

elapsed after the investigation of the subject by the committee of the House of Commons, in 1818, before the first act was passed affecting the usury laws. Nor does that appear to have been a direct and independent movement, but was introduced in the nature of a detail in the act rechartering the bank of England. The initiatory step thus made, has been followed by subsequent enactments until for all practical purposes except in the case of loans on real estate, the usury laws of England have been abolished. And we learn that within the last few months a bill has been introduced in the House of Commons to repeal this last remnant of a branch of political economy at war with the rights and interests of a free people.

In presenting this bill, the Chancellor of the Exchequer is reported to have made the following remarks in explaining its objects:

"The usury laws were already repealed, except in a single instance, and the measure was chiefly intended to sweep away a mass of useless legislation. Tracing the history of the subject, he observed that the great offender against the usury laws has been the State. The superstitious notions on the subject, partly Judaic, partly Mohomedan, had disappeared, and Parliament had disposed of the restrictions one by one, until the only one which remained was that affecting loan of money secured on real estate. Explaining the great inconvenience which had been occasioned in Scotland by the existing restriction in regard to mortgages on land, and in England in regard to railway debentures, he observed the usury laws had driven men to an enormous system of evasion of the law. Let us, he urged, fully recognize free trade in reference to money, and let those who desired to borrow, obtain money at the current price of the day."

But besides her own experience, England had an example in Holland, her near neighbor, where no usury laws or laws regulating the rate of interest had been in operation for ages; and we believe that it is generally known and admitted that the average rate of interest in Holland is lower than in any other part of Europe.

Having written and published two articles "on laws regulating interest" in the preceding volumes of this work,* in which we examined and discussed at large the principles and practical operations of such laws, we find it difficult to adduce arguments here without reiterating what we have published elsewhere. Indeed, to our

* Vide Vol. IV, p. 142. Vol. VIII, p. 261.

view, the argument is all on one side, and all that can be required to convince any unprejudiced mind of the folly and injustice involved in usury laws is a plain statement of their operations.

The only excuse that we have heard of for opposing the repeal of the present interest law in Missouri is, that under the former law the merchants were in the habit of claiming ten per cent. interest of their customers, and inasmuch as that rate was allowed by law, the customer could not refuse to pay it without endangering his reputation as an honorable and fair dealer. And hence it is infered that if the former law be re-enacted, the maximum rate of interest will again be claimed and established by the merchants. To this there is a ready answer: it will be in the power of every one to make his own contract, and it will be as convenient in all cases to stipulate in respect to the rate of interest, as to settle on the price of the goods to be purchased. But even this objection will be removed by repealing all limitation, and leaving the entire subject open to contract. *That is doubtless the true principle and the correct policy.* But where no terms are agreed on let the law fix a reasonable rate by which the rights of the parties may in all cases be determined. This is the policy adopted by Wisconsin, and we were pleased to observe that it was approved by Hon. R. W. Wells, Judge of the U. S. District Court, in an able article from his pen on the subject of usury, published in the fifth volume of the Western Journal, page 288. The Wisconsin law is in the following words: §. 1. Any rate of interest agreed upon by the parties in contract, specifying the same in writing, shall be legal and valid. §. 2. When no rate of interest is agreed upon, or specified in a note or contract, seven per cent. shall be the legal rate.

Such a law, we think, would remove the only plausable objection that we have ever heard urged against the repeal of the interest laws of this state.

In fixing the rate in cases left open by the parties to the contract, the average market rate for a series of years would seem to be the proper criterion; but it would be better, perhaps, to establish it below than above that point.

Money is an article of commerce, and is moreover one of its principal agents. It is one of the properties of money as an article of commerce, to go to the market where the demand is the most extensive and unremitting; but as an agent, it goes where, after deducting all costs and risks, the highest price can be obtained with the greatest certainty for its services.

If one State or nation place an arbitrary price upon its hire and that should be below the rates which can be obtained in some other country, it will leave the community where the price has been thus depressed and go where better wages can be had. But the high rate of interest occasioned by usury laws, will not bring money into a country except such amounts as may be introduced by the speculator and hard dealer; who having no respect for the law are willing to risk its penalties for the profits which they hope to realize by evading its sanctions.

But it is useless to enlarge upon a topic which must be plain to the understanding of all intelligent, unprejudiced minds. We have endeavored to discharge our duty touching a subject which, in our opinion, is most intimately connected with the prosperity of the State in a pecuniary point of view; and one which, as we believe, affects in no small degree the moral and social condition of the people.

By preventing the transfer of money from other countries to Missouri to be let out on interest, the usury laws operate materially against the establishment and growth of manufactures, against the development of our mineral wealth, against the operations of commerce, and against the progress of all works of public improvement; while the evasions which daily occur familiarize the mind of the citizen to a sense of disrespect and even contempt for the laws of the State.

A law so fruitful of evils, and so barren of benefits except to a class of individuals caring little for the common welfare, is a reproach to the State. And should the next General Assembly refuse or neglect to repeal it, that body will do injustice to its constituency, and stultify itself in the estimation of the enlightened Public economists of every civilized country.

In view of the subject in all its aspects, we say to the people and to the General Assembly of Missouri, renounce entirely this relic of barbarism and superstition. Let trade in money be as free as in all other commodities; place the conscientious and law-abiding citizen upon an equal footing with the unscrupulous law-evading usurer; and the certain consequences will be—a greater abundance of money and less temptation to the people to evade or violate the laws of the country.

ARTICLE II.

Limited Partnership.

The object of limited partnerships is to enable individuals possessing capital to become interested in mercantile, manufacturing or other branches of industry without hazarding the entire amount of their estates.

There are individuals in almost every community who possess industry, skill and other qualities fitting them for the management of business, but destitute of the means necessary to enable them to carry on their vocations upon their own account. These qualifications may be justly regarded in the light of individual capital, and also as constituting an important element of social wealth. The prosperity and happiness of communities, under every form of government, must depend in a great degree upon the nature of the associations between accumulated capital and industry. Hence it becomes the duty of the legislator to enquire whether there be anything in existing laws calculated to hinder accumulated wealth from forming more intimate and profitable relations with industry, intelligence and moral worth.

We admit the common law principle which makes each and every member of a partnership liable for all the debts of the firm to be just, both in an individual and social aspect. But we are persuaded that the policy of the common law may be modified and improved without materially affecting the justice of its operations. By authorizing individuals to enter into limited partnerships under proper restrictions, one ground of objection to subjecting their means to the management and control of others will be removed; and it is reasonable to conclude that if such a law existed, the number of associations between capitalists and individuals possessing only business qualifications, would be greatly enlarged.

Such a modification of the present law would tend to diversify the pursuits of the community by removing a part of the difficulties which lie in the way of enterprising, intelligent and worthy men who happen to be destitute of pecuniary means. It would afford a safe and most gratifying way of enabling individuals to assist their relations or friends in commencing business upon a solid basis, instead of leaving them to struggle with the almost in-

surmountable difficulties incident to every branch of industry not based upon a reasonable amount of capital.

While we do not claim for this measure the degree of consideration due to a system of banking, or to the repeal of the usury laws, yet, it is to be regarded as an important feature in an enlightened and liberal system of public economy. Within the period of a few years past, Missouri has entered upon a new career. She has undertaken works of great magnitude, and doubtless of great utility; the prosperity of the people at home, and the character of the State abroad, depends in no small degree upon the successful achievement of her schemes of improvement, and it behooves her legislators to discard the prejudices which have in times past retarded her progress, and adopt all such measures as are calculated to invite capital from abroad, and call into active and efficient service every useful faculty of the people, whether physical, mental or moral.

ARTICLE III.

Valley of the Ohio.

BY MANN BUTLER, ESQ.

Continued from page 172, vol. XII. No. 3.

MISSION OF FATHER GIBAULT FROM KASKASKIA TO VINCENNES IN 1778. HIS SUCCESS IN REDUCING IT UNDER THE GOVERNMENT OF VIRGINIA. CLARK'S NOTIONS OF INDIAN NEGOTIATIONS. GREAT INDIAN COUNCIL AT CAHOKIA; CEREMONIES, SPEECHES. RECAPTURE OF VINCENNES BY THE BRITISH. CAPT. HELM. GOV. HAMILTON. BRITISH PLAN OF CONQUEST FOR THE WESTERN COUNTRY. CLARK'S PLAN FOR RECOVERING VINCENNES FROM THE BRITISH.

For the gallant and well executed movement against Kaskaskia and Cahokia, Clark with his brave officers and men received the thanks of the House of Delegates of Virginia, "for their extraordinary resolution and perseverance in so hazardous an enterprise, and for the important services thereby rendered their country."*

* This vote was as follows:

IN THE HOUSE OF DELEGATES,
Monday, 23d November, 1778.

Whereas authentic information has been received that Lieutenant Colonel George Rogers Clark, with a body of Virginia militia, has reduced the British posts in the western part of this Commonwealth, on the Mississippi and its

This is the first public testimonial of Clark's services to his native State, and the republic at large; and well and most justly did he, his officers and men deserve them.

But though Clark had met with a success so much beyond his means and almost beyond his expectations; although the country was apparently subjected and even attached to the American government, yet, his uneasiness was great. He was fully aware of the critical delicacy of his situation; and the necessity of exerting all the address he was master of, to maintain his position with service to his country and honor to himself. A close understanding was cultivated with the Spanish officers on the opposite side of the Mississippi; as every influence was required to counteract the extended influence of the British.

They had distributed the bloody belt and hatchet from Lake Superior to the Mississippi and Ohio. In this long chain of intrigue with the Indians, Post St. Vincent, now better known as Vincennes, formed an important link; owing not only to the warlike chararcter of the adjacent tribes, but also to their contiguity to Kaskaskia, and the settlements of Kentucky.

Yet its capture was utterly beyond the power of the handful of troops, "joined by every man in Kentucky;"† Clark therefore resorted to other means. The American soldiers were instructed to speak of the Falls of Ohio, as the head quarters of the army, from which the present troops were only a detachment; that reinforcements were daily expected from that point, which was fortifying; and that when they arrived, more extensive military movements would take place. Some such artifice was deemed necessary to excuse the apparent rashness of invading the Illinois with so small a force.

Courts of civil jurisdiction were likewise established by Clark, which were held by French judges freely chosen by the people, leaving an appeal to Clark.

About this time, M. Gabriel Cerre, who was before mentioned, uneasy that his family and property should be alone kept under guard, at Kaskaskia, and fearful of venturing into the power of

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branches, whereby great advantage may accrue to the common cause of America, as well as to this Commonwealth in particular;

Resolved, that the thanks of this House are justly due to the said Col. Clark and the brave officers and men under his command, for their extraordinary resolution and perseverance in so hazardous an enterprise, and for their important services thereby rendered their country.

Test. E. RANDOLPH, C. H. D.

† Memoirs of Clark.

an American officer without a safe conduct, procured the recommendation of the Spanish governor of St. Louis, as well as the commandant at Ste. Genevieve supported by the influence of the greater part of the citizens; for the purpose of obtaining this security. It was all in vain; Col. Clark peremptorily refused it, and intimated that he wished to hear no more such applications; he understood, he said, that M. Cerre was a "sensible man," and if he were innocent of the charge of inciting the Indians against the Americans, he need not be afraid of delivering himself up. Backwardness would only increase suspicion against him. Shortly after this expression of Clark's sentiments, M. Cerre, to whom they were no doubt communicated, repaired to Kaskaskia, and before visiting his family immediately waited on Col. Clark who informed him, that the crime with which he stood charged, was encouraging the Indians in their murders and devastations on our own frontiers. An enormity, continued Clark, whose perpetrators, it behooved every civilized people to punish, whenever they got such violators of the laws of honorable warfare within their power. To this accusation Mr. Cerre frankly replied, that he was a mere merchant, and had never been concerned in affairs of State beyond the interests of his business. In fine this eminent French merchant declared his willingness to meet the strictest enquiry into the only heinous charge against him. This was everything the American commander required; he then desired M. Cerre to retire into another room, while he sent for his accusers. They immediately attended followed by the greater part of the inhabitants. M. Cerre was summoned to confront them: the parties were told by Col. Clark that he had no disposition to condemn any man unheard; that the accused was now present, and he [Clark] was ready to do justice to the civilized world by punishing him, if guilty of inciting Indians to commit their enormities on helpless women and children. The accusers began to whisper to one another and retire until but one was left of six or seven at first. This person was asked for his proof of the charges against M. Cerre; but he had none to produce, and the French merchant was honorably acquitted, not more to his own satisfaction than to that of his neighbors and friends. M. Cerre delighted at the fair and generous treatment he had met with from Col. Clark, immediately took the oath of allegiance and became a "most valuable" friend to the American cause.

So successful was the management of Clark, that whether he

bribed or whether he punished, both methods were made conducive to the public interest. In this case, as in that of the inhabitants of Kaskaskia in general, he kept up an appearance of rigor for the purpose of enhancing the indulgence he wished and determined to employ; reserve in favors was a common feature in his policy.

Post St. Vincents still continued to occupy the thoughts of Clark as a point of great importance to the safety of his present position, and to the extension of the Virginia dominion. "It was never," he says, "out of my mind." It had indeed occupied his thoughts, on his first descent of the Ohio river; and was only relinquished at that time, from his weakness. These early inclinations were renewed by his success at Kaskaskia; and he sent for M. Gibault, the Roman catholic priest of this village, as well as of St. Vincents.

This gentleman, who subsequently received the public thanks of Virginia for his distinguished services, had been steadily attached to the American cause. He readily gave Col. Clark every information he desired; told him that Gov. Abbot, the commandant, had lately gone from St. Vincents on business to Detroit; that a military expedition from the Falls of Ohio against St. Vincents, (which Clark pretended to meditate,) was scarcely necessary. This patriotic priest offered, if it met the approbation of Colonel Clark, "to take the business on himself, and he had no doubt of his being able to bring that place over to the American interest, without," he said, "my being at the trouble of marching against it."

Nor is it unfair to believe that this patriotic clergyman may have taken into consideration the interests of his parishioners of St. Vincents, by trying to save them from the chances of military violence, as well as to promote the extension of the new country of his adoption. The generous and equal spirit justly exhibited by Col. Clark to the Roman Catholics of the Illinois, and which Protestant bigotry had too rarely imitated, together with his paternal administration, all united to propagate American influence, and extend its arms over these Roman Catholic villages.

To the offers of M. Gibault Clark readily assented; for it was the fondest wish of his heart; yet he scarcely ventured to indulge it. At the request of M. Gibault, Doctor La Forge was associated with him as a temporal member of the embassy. The prin-

cipal charge of the business was placed in the hands of the good priest.

On the 14th of July, the French gentlemen accompanied by a spy of Clark, (an auxiliary which he seems hardly even to have omitted in the missions he employed,) set off for St. Vincents, or O. Post.* In two or three days, after the arrival of this rather extraordinary embassy, and the enjoyment of full explanation between the priest and his flock, the inhabitants threw off the yoke of the British government, and assembling in a body at the church, took the oath of allegiance to the *Commonwealth of Virginia.* A commandant was elected, and the American flag immediately displayed over the fort, to the astonishment of the Indians.

Thus again fell another of the French settlements, founded in all probability about 1735.† This event is to be attributed to the friendly influence of M. Gibault, added to the good will of the inhabitants towards the Americans, as the friends and allies of France, and now enemies to their old antagonists, the English. The savages were told by their French friends, "that their old Father, the King of France, had come to life again, and was mad with them for fighting for the English; that if they did not wish the land to be bloody with war, they must make peace with the Americans."

About the 1st of August, 1778, M. Gibault and party returned with the joyful intelligence of having peaceably adjusted everything at St. Vincents, in favor of the American interest; no less to the astonishment of Clark, than to his gratification and that of the inhabitants of Kaskaskia.

A new source of perplexity now opened in the mind of Colonel Clark; the three months for which his men had enlisted now expired. But the discretionary authority so wisely lodged with an officer acting on so remote a stage, and under such embarrassing difficulties, determined him to strain his authority to preserve the public interest, for which it was conferred upon him. He could not divert himself of the only American power on which he could rely, in any emergency, without hazarding the whole fruit of his bold and successful expedition.

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* A corruption of the French. Au Post, as it was often called.

† See an elaborate discussion of the foundation of Vincennes, by the esteemed, truthful and inquisitive Perkins, 66, 67, 2d Edit. Annals of the West.. Bancroft, III, 346.

He therefore re-enlisted his men on a new footing; raised a company among the native inhabitants, commanded by their own officers; established a garrison at Kaskaskia under the command of Capt. Williams, and another at Cahokia under that of Capt. Bowman.

While Capt. William Linn (formerly commemorated, in an early descent of the Mississippi,) who had accompanied the expedition, as a volunteer, took charge of the men who wished to return; he also had orders from Col. Clark to establish a fort at the Falls of Ohio.

On their arrival in Kentucky, Capt. Linn executed his orders by building a stockade fort at the termination of the present 12th street, on the easterly side of a large ravine, which in 1832 opened into the river. Here was planted the thrifty germ of Louisville, now the emporium of Kentucky, which seems fairly destined to grow with the countless prosperity of this great republic with whose remotest commerce and union she is vitally connected. Captain John Montgomery was also dispatched to Richmond, in Virginia, in charge of M. Rocheblave, the British commandant of Kaskaskia.*

The governor of Virginia was informed of Clark's proceedings through Capt. Montgomery, and his wish that a civil commandant should be appointed to take charge of the political affairs of this secluded portion of the Commonwealth.

In consequence of this recommendation, an act was passed by the legislature of Virginia, in October 1778, enacting that all the

* The fort here mentioned at Louisville was, in 1782, succeeded by a larger one, built by the regular troops, assisted by the militia from all the settled parts of the *District of Kentucky*. It was situated between the present (1833) 6 h and 8th streets, in the northern side of Main street, immediately on the bank of the river. In honor of the third republican governor of Virginia, it was called Fort *Nelson*. Seventh street passed through the first gate, opposite to the head quarters of the then *General Clark*.

This early and principal military defence, in this part of the valley, deserves a few more particulars. It contained about an acre of ground, and was surrounded by a ditch eight feet deep and ten feet wide, intersected in the middle by a row of sharp pickets; this ditch was surmounted by a breastwork of log pens or inclosures filled with earth obtained from the ditch, together with pickets ten feet high planted on the top of the breast work. Next to the river, pickets alone were deemed sufficient aided by the long slope of the river bank. Some of the remains of these pickets were dug up, in the summer of 1832, in excavating the cellars for Mr. John Love's stores, on Main street, opposite to the *Louisville Hotel*. There was artillery in the fort, particularly a double fortified brass piece which had been captured by Clark at Vincennes. This piece played no inconsiderable part in the military operations of this day of small things, insignificant as they must appear to a regular military critic. The ground of both these forts was personally inspected by the author, in company with the late Capt. Donne, a well known pilot of the Falls, from whom these particulars were learned.

citizens of the Commonwealth of Virginia who are already settled or shall hereafter settle on the *western side of the Ohio*, shall be included in a district county, which shall be called *Illinois county*."† The same statute authorised the appointment of a County Lieutenant, or commandant in chief, in that county, who was himself empowered to appoint deputy commandants and commissaries as he might think proper. In addition to this Virginia organization of Illinois, "all civil officers to which the inhabitants have been accustomed, necessary for the preservation of the peace, and the administration of justice, shall be chosen by a *majority of the citizens* in their respective districts, to be convened for that purpose by the County Lieutenant or commandant, or his deputy."‡ Col. John Todd, who afterwards lost his life at the disastrous battle of the Blue Licks so much to the regret of the country, received the appointment of Commandant and Lieutenant Colonel of the *County of Illinois:* a mark of no ordinary confidence for an appointment in a distant province of Virginia. A regiment of five hundred men was also authorized to be raised and an opening of communications with the Spanish city of New Orleans was directed, for the support of this detachment.

About the middle of August Capt. Leonard Helm was appointed by Col. Clark, with no little grandiloquence, commandant at St. Vincents, and "*agent for Indian affairs in the department of the Wabash.*" This officer was particularly recommended to Clark by his knowledge of deportment and general prudence of character.* In addition to these civil regulations, Colonel Clark entered into a series of Indian treaties, the first which our countrymen held with the Indians of this portion of the West. These were conducted with an efficiency and dignity, as well as attended with such remarkable circumstances, as to deserve particular detail. Clark had always thought that the policy of inviting Indians to treat, was founded in a mistaken estimate of their character; they always looked upon such invitations, he believed, as evidences either of fear or weakness, or both. He, therefore, studiously avoided every invitation of the sort, and waited for the Indians to request a treaty; while he fought them fiercely and en-

† Henning's Statutes at large, and Dillon, 150.

‡ Dillon, 150, 151.

* An ancestor of a distinguished family in Kentucky, one of whom was lately Lieutenant Governor of the State.

ergetically, until they did so. Col. Clark had made himself acquainted with the French and Spanish modes of treating the Indians, and had been long devoted to the study of the Indian character. In consequence of this, he determined to guard against spoiling the Indians, as had been too much the case in negotiating the English treaties; to use the strictest reserve, and to grant presents with a niggardly hand, as wrung from him, rather than as spontaneous and willing gratifications. These are principles of conduct founded on a profound knowledge of our indigenous barbarians; the propriety of which is confirmed by the success of Col. Clark, in the weakness of his military force, over the Indian multitude all around him; and it is well contrasted with any subsequent negotiations with the red men.

The ceremonies of the first and ancient council of our countrymen with these remote sons of the forest are worth recording, as they are found in the memoir of the negotiator himself.

These treaties began about the 1st of September, 1778, in the neighborhood of Cahokia. The parties both white and red had assembled, when the chief who was to open the council, as the Indians were the solicitors, advanced to the *table* at which Col. Clark was sitting, with the belt of peace in his hand, another with the sacred pipe, and a third with fire to kindle it. After the pipe was lighted, it was presented to the heavens, then to the earth, and completing a circle, was presented to all the spirits invoking them to witness what was about to be done.

The pipe was now presented to Col. Clark, and afterwards to every person present.*

After these formalities the speaker addressed himself to the Indians as follows: "Warriors, you ought to be thankful that the Great Spirit has taken pity on you, has cleared the sky and opened your ears and hearts so that you may hear the truth. We have been deceived by bad birds flying through the land, [meaning the British emissaries]; but we will take up the bloody hatchet no more against the *Big Knife*, [meaning our countrymen]; and we hope that as the Great Spirit has brought us together for good, as he is good, so we may be received as friends; and peace may take the place of the bloody belt." The speaker then threw into the middle of the room the bloody belt of wampum, and flags which had been

* Clark's memoir.

received from the British and stamped upon them, in token of their rejection.

To this address, Clark very guardedly and coldly replied: "I have paid attention to what has been said, and will to-morrow give you an answer, when I hope the hearts of all people will be ready to receive the truth. But I recommend them to keep prepared for the result of this council, upon which their very existence as nations depends. I desire them not to let any of our people shake hands with them, as peace was not yet made; and it was time enough to give the hand, when the heart could be given also." An Indian chief rejoined to this address that "such sentiments are like men who had but one heart, and did not speak with a forked tongue."

The council then rose, until the next day, when Clark delivered to the Indians again assembled the following address, which is taken literally from his memoir: "Men and Warriors. Pay attention to my words. You informed me yesterday, that the Great Spirit had brought us together, and that you hoped that as he was good, it would be for good. I have also the same hope, and expect that each party will strictly adhere to whatever may be agreed on, whether it shall be peace or war; and hence forward, prove ourselves worthy of the protection of the Great Spirit. I am a man and a warrior, not a counsellor; I carry war in my right hand, and in my left, peace. I am sent by the Great Council of the Big Knife and their friends, to take possession of all the towns possessed by the English in this country, and to watch the motions of the Red people; to bloody the paths of those who attempt to stop the course of the river; but to clear the roads from us to those that desire to be at peace; that the women and children may walk in them, without meeting anything to strike their feet against. I am ordered to call upon the Great Fire for warriors enough to darken the land, that the Red people may hear no sound but of birds that live on blood."

"I know there is a mist before your eyes; I will dispel the clouds, that you may clearly see the causes of the war between the Big Knife and the English; then you may judge for yourselves, which party is in the right; and if you are warriors, as you profess yourselves to be, prove it by adhering faithfully to the one which you shall believe to be entitled to your friendship; and not show yourselves squaws."

"The Big Knife is very much like the Red people, they don't know how to make blankets and powder and cloth; they buy these things from the English from whom they are sprung. They live by making corn, hunting and trade, as you and your neighbors the French do. But the Big Knife daily getting more numerous, like the trees in the woods, the land became poor and hunting scarce; and having but little to trade with, the women began to cry at seeing their children naked, and they tried to make clothes for themselves. They soon made blankets for their husbands and children, and the men learned to make guns and powder. In this way, we did not want to buy so much from the English; they then got mad with us, and sent strong garrisons through our country, (as you see they have done among you on the lakes, and among the French); they would not let our women spin, nor our men make powder; nor let us trade with any body else. The English said we should buy everything from them, and since we had got saucy, we should give two *bucks* for a blanket, which we used to get for one; we should do as they pleased; and they killed some of our people, to make the rest fear them."

"This is the truth and the real cause of the war between the English and us, which did not take place for some time after this treatment. But our women became cold and hungry, and continued to cry; our young men became lost for want of counsel to put them in the right path. The whole land was dark, the old men held down their heads for shame, because they could not see the sun, and thus there was mourning for many years over the land."

"At last the Great Spirit took pity on us, and kindled a great council fire, that man goes out at a place called Philadelphia; he then stuck down a post, and put a war tomahawk by it, and went away. The sun immediately broke out; the sky was blue again; the old men held up their heads and assembled at the fire; they took up the hatchet, sharpened it and put it into the hands of our young men, ordered them to strike the English as long as they could find one, on this side of the great waters. The young men immediately struck the war post and blood was shed. In this way the war began; and the English were driven from one place to another, until they got weak, and then they hired you Red people to fight for them. The Great Spirit got angry at this, and caused your old Father, the French king, and other great nations to join the Big Knife and fight with them against all their enemies. So

the English have become like a deer in the woods; and you may see it is the Great Spirit that has caused your waters to be troubled, because you have fought for the people he was mad with."

"If your women and children should now cry, you must blame yourselves for it, and not the Big Knife. You can now judge, who is in the right. I have already told you who I am; here is a bloody belt and a white one, take which you please. Behave like men, and don't let your being surrounded by the Big Knife cause you to take up the one belt with your hands, while your hearts take up the other. If you take the bloody path, you shall leave the town in safety, and you may go and join your friends, the English. We will then try, like warriors, who can put the most stumbling blocks in each other's way, and keep each other's clothes longest stained with blood. If on the other hand, you shall take the path of peace, and be received as brothers to the Big Knife with their friends, the French, should you then listen to bad birds that may be flying through the land, you will no longer deserve to be counted as men, but as creatures with two tongues that ought to be destroyed without listening to anything you might say."

"As I am convinced you never heard the truth before, I do not wish you to answer before you have taken counsel. We will therefore part this evening, and when the Great Spirit shall bring us together again, let us speak and think with but one heart and one tongue."

The next day after this speech a new fire was kindled with more than usual ceremony, when the Indian speaker again came forward and said: "They ought to be thankful that the Great Spirit had taken pity on them, and opened their ears and hearts to receive the truth. I have paid great attention to what the Great Spirit had put into my heart to say to us, as the Big Knife did not speak, like any other people we have heard. We now see that we have been deceived, and that the English had told them lies, and that you have told us the truth; just as some of our old men have always told us. We now believe that you are in the right; and as the English had forts in their country, they might, if they [illegible] strong enough, want to serve them, as they had treated the [illegible] taken the. The Red people ought therefore to help us; we have [illegible]ed to hold the [illegible] of peace, and [illegible]urned that of war; we are determin[illegible]r fast, and [illegible] no doubt of your friendship,

from the manner of your speaking, so different from that of the English. We will now call in our warriors, and throw the tomahawk into the river, where it can never be found. We will suffer no more bad birds to fly through the land disquieting the women and children. We will be careful to smooth the roads for our brothers, the Big Knife, whenever they may wish to come and see us."

"Our friends shall hear of the good talk you have given us; and we hope you will send chiefs among us with your own eyes to see yourself that we are men, and strictly adhere to all we have said, at this great fire, which the Great Spirit has kindled at Cahokia, for the good of all people who have attended it."

The pipe was again kindled and presented to all the spirits as witnesses of the transactions. It was smoked; and the council was concluded by shaking hands among all the parties, both white and red. In this manner, with very little variety, treaties were concluded with many tribes with a dignity and sense of importance in their eyes, little inferior to that felt by our own countrymen at the alliance of their government with the powerful kingdom of France.

These negotiations of Clark at Cahokia, in a short time undermined the British influence through a large portion of these regions. The co-operation of the French inhabitants essentially contributed to these important results; the Indians implicitly trusted in the representations of their ancient allies, and became thoroughly alarmed by the French accounts of the power of the Americans. Their actual force on the spot was utterly too insignificant, even added to the boasted reinforcement from Kentucky, to have had any such influence. Let the recollection of this ancient partiality of our French fellow-citizens be an additional bond of attachment between the descendants of fathers who so early had been friends.

Col. Clark adhered resolutely to a determination of not appearing to court the Indians; he even affected to apologize for making them the few presents his scanty stores enabled him to confer. He attributed them to the great way they had traveled; and thus having expended their ammunition and worn out their moccasins and leggins. The native tribes were so much alarmed at the high and disdainful spirit of their new neighbor that the conclusion[illegible]ence of notwithstanding Clark's reserve, and possibly in confirmed by it, gave them satisfaction. [illegible]ate of mind Clark kept [illegible]ong all his new allies the report of the spies

as well as the more doubtful tribes. So well consolidated was his influence under the co-operation of French cordiality, that a single soldier could be sent in safety among the Indians through any part of the Wabash and Illinois country, to the heads of the waters discharging themselves into the lakes and the Mississippi.

Here the British still maintained their ascendency; no doubt as has always been the case by holding the forts through the country. Indeed, many of the tribes were even now divided between them and the Americans. So sudden and extensive a change among the Indians in our favor is mainly attributed to the friendly disposition of the French agents and traders, supported by the stern and commanding deportment of Col. Clark. It required all his tact, united to the French influence, to preserve the firt impression he had made, while at the head of so inadequate a force.

Accordingly the prospect of reinforcement from the Falls of Ohio was constantly held out, and every means adopted to attach our new fellow-citizens to the American government. No fees were exacted by the commanding officers in the weekly courts, which were occupied by the business and disputes of the people: a contract of administration most favorable to American influence, in the poverty and docility of this primitive people. A friendly correspondence with the Spanish government on the opposite side of the Mississippi, and the permission of some trade with agents, even from Canada, all contributed to maintain a controlling influence over the savages.

ARTICLE IV.

Treaty between the U. S. and Mexico.—The Mesilla Valley.—Pacific Railroad.

So little is known respecting the country recently acquired by the United States under the late treaty with Mexico that we conclude a description of that region, in connection with the treaty, will be interesting to our readers.

It is generally conceded, we believe, that the principal motive to the purchase of the Mesilla Valley was the acquisition of a favorable route for a railroad from the Atlantic to the Pacific ocean. We have, therefore, selected from Commissioner Bartlett's personal

narrative such facts as would seem to affect the practicability and profitables of building a railroad through that region.

It will be recollected that the initial point for the commencement of the northern boundary line of Mexico was fixed by commissioners where the parallel of 32° 22′ north latitude intersects the middle of the Rio Grande. Thence the line proceeded west to the waters of the Gila. By the late treaty, this line is to commence on the Rio Grande at a point where the parallel of 31° 47′ intersects the middle of that river, being 35′ or about forty miles further south. This space includes the Mesilla Valley. As the meaning of the name, and the character of this valley is not generally understood, we quote the following, by way of explanation, from Bartlett's personal narrative:

"*Mesilla* is the diminutive of the Spanish word *mesa*, i. e. table, also table-land, or plateau, and is applied to a lesser plateau in the valley of the Rio Grande, beneath that of the great *mesa* or table-land which extends for several hundred miles in all directions from the Rio Grande. It is situated on the western side of the Rio Grande, about fifty miles above El Paso, in latitude about 32° 18′ north, and until the year 1850, it was without an inhabitant."

In March 1851, it contained between six and seven hundred inhabitants, mostly Mexicans who removed from the east side of the Rio Grande by reason of the claims set up to their lands by American citizens holding land grants or certificates known as "Texas head-rights." The author says the lands at La Mesilla are precisely of the same character as other bottom lands, on the opposite bank of the river, near Dona Ana and Cruces.

Referring to the value of the bottom lands on the Rio Grande, for agricultural purposes, Mr. Bartlett says:

"A mistaken idea prevails in regard to the great advantage of artificial irrigation over that of natural rains. It is true that where the cultivator can depend upon an ample supply of water at all seasons in the irrigating canals, he possesses an advantage over him who relies exclusively on nature. But the misfortune is that when water is most needed, the supply is the scantiest. In February and March there is always enough for the first irrigation. In April and May the quantity is much diminished; and if the rise expected to take place in the middle of May, fails, there is not enough to irrigate properly all the fields prepared for it. The consequence is, a partial failure of crop. In 1851 many large tracts of land near El Paso, which were planted in the spring, and through which irrigating canals were dug at a great cost, pro-

duced nothing;" and the author was told by a gentleman at San Eleazario, twenty-five miles below El Paso, "that the summer of 1852 was the first one in five years when there had been sufficient to irrigate all the lands of that vicinity which had been put under cultivation." He concludes that "not one tenth part of the fertile bottom land of the Rio Grande can be cultivated, owing to the uncertainty of the supply of water. The Rio Grande receives no tributary for more than four hundred miles, reckoning above and below El Paso; and if there is now found to be not water enough even for the limited district near that town, what is to be done with the vast tract along the river below at a time of scarcity?"

From these facts it is obvious that even the narrow slip of bottom land on the Rio Grande, constituting the Mesilla valley proper, is of but very little value for agricultural purposes.

Having emerged from the valley of the Rio Grande and reached the summit of a high table-land, the author says:

"On the west, the broad undulating prairie was only here and there interrupted by low conical-shaped hills. At the south and south-west, detached mountains appeared abruptly springing from the plain, with jagged and picturesque summits, some of which must have been fifteen hundred feet in height. In the clear blue atmosphere of this elevated plateau, every object appeared with great distinctness, so that mountains could be seen at a distance of more than a hundred miles."

After crossing this barren plateau, at the distance of about seventy-five miles from the Rio Grande, the party reached the Rio Mimbres; "the third stream," says the author, "we had seen since passing the small water courses which empty into the Colorado, in our journey from San Antonio to El Paso, the Picos and the Rio Grande being the other two. * * * * The bottom for nearly a mile in width was covered with verdure, such as we have not seen since leaving the rich vallies near Fredericksburg, in Texas."

The Rio Mimbres is described as being a stream from "ten to twenty feet in width, and in some places even less: its waters soft and delightful to the taste. * * * It has never been traced to either of its terminations. It rises in the mountains north-east of the copper mines, and when full, empties into lake Guzman, about one hundred and thirty miles to the south; but for several months in the year it exists only in pools, or dries up entirely, after reaching the plains. When the surveying party crossed it six weeks later, about fifteen miles lower down, they found it entirely dry."

The bottom at the place crossed by the party was thickly wooded: ash and oak were interspersed among large cotton-wood; wild

roses, hops and the Missouri currant grew in great profusion, and so much entangled that it was difficult to pass through them. The bottom lands are narrow. But the author thinks if cultivated they would afford provision to supply a respectable number of operatives at the copper mines which are distant about eight miles from the stream. Game, consisting of black-tailed deer, bears, turkeys, quails, &c., are abundant in the valley of the Rio Mimbres, and in the copper mine region. An excellent forest, however, consisting of two species of pine, and two species of evergreen oaks, seems to be the most interesting and valuable feature of this region. This range of forest extends from the Gila eastward about fifty miles; but lies, as we believe, north of the lands lately acquired. We copy the following remarks of the author at the close of the third day after leaving the copper mines:

"The country passed over in the last three days is barren and uninteresting in the extreme. As we toiled across these sterile plains, where no tree offered its friendly shade, the sun glowing fiercely, and the wind hot from the parched earth, cracking the lips and burning the eyes, the thought would keep suggesting itself, is this the land we have purchased, and are to survey and keep at such cost? As far as the eye can reach, stretches one unbroken waste, barren, wild and worthless. For fifty-two long miles we have traversed it without finding a drop of water that our suffering beasts would drink; nor has there been grass enough since we left the copper mine region for more than a small number of animals, such as our own."

"The animals noticed seem to have partaken of the wildness of the country they inhabit. An occasional herd of antelopes is seen galloping in the distance, unapproachable by the hunter, for the want of a tree or shrub behind which he may advance. Lizards of various hues and graceful shapes glide about with inconceivable swiftness. A startled hare throws up its ears, and bounds out of sight. The prairie dog gives a shrill cry of warning to its fellows, and drops into its burrow. The only things that do not seem terror-striken, are the so-called *horned frogs*. They, as if conscious of the security afforded by their own hideous ugliness, sullenly remove themselves out of the way of the horses' hoofs, and regard the passer with malicious eyes. The vegetable presents scarcely more of interest than the animal world. The flowers are almost entirely of that most unbecoming of all hues, yellow—varying from sulphur color to orange—and glaring in the bright sun light. One becomes sickened and disgusted with the ever-recurring sameness of plain and mountain, plant and living thing. But if the day's travel is tedious, it is almost compensated by the glory of the night. In this clear dry atmosphere, without cloud or haze, moonlight

and starlight have a splendor of which dwellers upon the sea-side cannot conceive."

This may be regarded as a general description of that part of the Mesilla purchase, lying between the Rio Grande and the Rio San Pedro, a tributary of the Gila.

The point on the Rio San Pedro first reached by Commissioner Bartlett was on the parallel of latitude 31° 54′ 31″; Longit. west from Greenwich 110° 11′ 41″. He says:

"The stream much resembled the Pecos in appearance, though much smaller, was here about twenty feet across, about two feet deep, and quite rapid. The water, though muddy, was pleasant to the taste. The valley of the San Pedro near our camp was anything but luxuriant. It consists of a loam, which if irrigated might be productive; but as the banks are not less than eight or ten feet high, irrigation is impracticable, except by digging a canal of a very long distance. The grass of the vicinity is miserably thin and poor, growing merely in tufts beneath the mzquit bushes, which constitute the only shrubbery, and in some instances attain a height of ten or twelve feet; low hills approach within a mile of the river, on the east side, and on the west within a quarter of a mile."

About three miles further south, however, the party succeded in finding grass sufficient for their animals.

From this camp, Mr. Bartlett set out in search of San[illegible]ruz, a town about forty miles distant, in a southern di[illegible]on, for the purpose of procuring provisions. Having [illegible]guide, the party wandered among the mountains and de[illegible]bout two weeks before it reached the town. Our author[illegible]e *presideos*, or military posts,

"*Santa Cruz* is one of th[illegible] of Sonora. It was formerly a place on the frontier of the[illegible]ace, with about fifteen hundred inhabitants; of considerable i[illegible]population does not exceed three hundred. It but at presne[illegible] valley and bottom land of the richest soil, and is possesa by a small stream bearing its own name, which has its [illegible]e in springs about ten miles to the north. It is admirably adapted for the raising of cattle and horses, as well as of all kinds of grain."

We regret that Mr. Bartlett has not given the latitude of Santa Cruz. From its location on the map and its supposed distance from the camp on the Rio San Pedro, we conclude that it is within the limit of the late purchase, though it must be very near the line. The valley of Santa Cruz river whose source is but a short distance north of the town is perhaps worth all the rest of the Mesilla purchase for agricultural purposes.

The author's lively description of the Santa Cruz valley is quite refreshing to one after following him for many hundred miles through sterile plains and rugged mountains. Of this valley he says:

"A few miles brought us to the *Puerta*, or gate in the mountain; pursuing which, we emerged into a very broad and open plain of remarkable beauty. From the elevation where we first saw the valley, the prospect was exceedingly picturesque. Around us grew the maguay, the yucca, and various kinds of cacti, together with small oaks; while beneath us, the valley spread out from six to eight miles in width, and some twelve or fifteen in length. Unlike the desolate and barren plains between the mountain ridges, which we have crossed between the Rio Grande and the San Pedro, this valley was covered with the most luxuriant herbage, and thickly studded with live oaks; not like a forest, but rather resembling a cultivated park."

In his rambles between the camp on the Rio San Pedro and Santa Cruz, Mr. Bartlett passed through a beautiful valley watered by a small stream, but we are not informed whether this stream is a tributary of the San Pedro or of the Santa Cruz. He says:

"The valley for the last ten miles of our march resembled an old and highly cultivated place, from which the people and their habitations had suddenly disappeared. Large cotton-wood trees and willow bushes lined the stream, while here and there in little groves beautiful oaks and large mezquit trees; for the latter, although adapted to every soil, becomes a large tree in rich soil like this. It seemed that each grove, as we approached it, must conceal some dwelling-place and cultivated grounds; but in reality all was solitude, and there was no evidence that a furrow had ever turned the virgin soil, or a seed ever been sown there."

He says nothing of the width of the valley, but we infer that it is quite narrow.

Notwithstanding the valley of the San Pedro is represented as being sterile at the place where Mr. Bartlett crossed it, it is probable that it may be more fertile in other parts. The valley of the *Babocomori*, one of its tributaries, crossed by Mr. Bartlett, is described as being from a quarter to a half a mile in breadth, and covered with a luxuriant growth of grass. The stream is about twenty feet wide with willows and large cotton-wood trees growing on its margin.

In a summary view of the route the author states:

"From San Antonio to Fredericksburg [69–67 miles] the road is very stony a portion of the way, the remainder good. The soil is excellent. Wood, water and grass are always found at conven-

ient distances, and in abundance. The soil continues of a good quality until the San Saba is reached; [137 miles from San Antonio] from that river to the north fork of Brady's Creek it is not so good. The grass is generally light to the latter place, with less wood and water, though enough for parties travelling. We now begin to get on the great table-land of Texas, where there is little rain and a poor soil. Several small streams emptying into the Colorado or the Concho here intersect the road, on the immediate banks of which there are a few trees. But the intermediate country is destitute of timber, save a very few small oak or mezquit. The grass too is poor, except near the water courses. On leaving the head waters of the Conchos, nature assumes a new aspect. Here trees and shrubs disappear, except the thorny chapporal of the deserts; the water courses all cease, nor does any stream intervene until the Rio Grande is reached, three hundred and fifty miles distant, except the muddy Pecos, which, rising in the Rocky Mountains near Santa Fe, crosses the great desert plain west of of Llano Estacado, or staked plains. From the Rio Grande to the waters of the Pacific, pursuing a western course along the 32d parallel, near El Paso Del Norte, there is no stream of a higher grade than a small creek. I know of none but the San Pedro and the Santa Cruz, the latter but a rivulet losing itself in the sands near the Gila, and the other but a diminutive stream scarcely reaching that river. At the head waters of the Concho, therefore, begins that great desert region, which, with no interruption save a limited valley or bottom land along the Rio Grande, and lesser ones near the small courses mentioned, extends over a district embracing sixteen degrees of longitude, or about a thousand miles, and is wholly unfit for agriculture. It is a desolate barren waste, which can never be rendered useful for man or beast, save for a public highway. It is destitute of forests, except in the defiles and gorges of the higher mountains or on their summits. Along the valley of the Rio Grande, which is from one and a half to two miles in width, there grow large cotton-wood trees and a few mezquit; but between this river and the north fork of Brady's Creek there is no timbered land."

Now, admitting that the region of country described by Mr. Bartlett affords a route as level as could be desired for the construction of a railroad, still, in an economical point of view, intelligent, practical men must doubt the practicability of making a railroad across a "desert region" a thousand miles wide; which with such slight interruptions "is wholly unfit for agriculture." Other conditions and appliances besides a level surface are necessary to make a railroad upon terms that will render it profitab le to the builders.

There is no point between the Gulf of Mexico and the mouth of

the Gila from which the line could be supplied with iron. And, after a careful examination of Mr. Bartlett's description of the country, we conclude that there is not sufficient timber within one hundred miles of a line of road located between the parallels of 31° and 32° north latitude to construct it; this would be the case for at least one thousand miles of the route. And it may be confidently affirmed that a supply of bread and grain sufficient to feed the number of hands and teams which must be employed on the work, if prosecuted with reasonable speed, could not be obtained within two hundred miles of the line, after leaving the sources of the Colorado of Texas. Nor is it practicable, according to the facts stated by Mr. Bartlett, to increase, to any considerable degree, the productions of that region. He has shown that as much land is already in cultivation in the valley of the Rio del Norte as can be supplied with water. There are three towns in the valley of the Santa Cruz containing in all about seven hundred inhabitants, which comprise the population of the valley; and the following extracts will show how little prospect there is of increasing the agricultural products or population in that region. The author states:

"As an example of the uncertainty of crops from artificial irrigation in this country, I will mention a circumstance which occurred at Tubac. The preceding fall after the place had been again occupied, a party of Mormons in passing through on their way to California was induced to stop there by the representations of the commandante. He offered them lands in the rich valley, where acequias were already dug, if they would remain and cultivate it; assuring them that they would find a ready market for all the corn, wheat and vegetables they could raise, from troops and from passing emigrants. The offer was so good, and the prospect so flattering, that they consented to remain. They therefore set to work, and ploughed and sowed their lands, in which they expended all their means, anticipating an abundant harvest. But the spring and summer came without rain: the river dried up; their fields could not be irrigated, and their labor, time and money were lost. They abandoned the place," and proceeded to California.

The author relates another instance in the ruins of a large rancho known as *Calabasa*.

"This Calabasa, I was told by Leroux, was a thriving establishment when he visited it twenty years ago. A large tract of land was then under cultivation, and herds of cattle were reared on the adjacent hills. But the stream did not furnish a sufficient quantity of water to irrigate it, without cutting off entirely the towns

of Tubac and Tucson, and consequently it was abandoned. This is the difficulty with these small water-courses; for having few or no tributaries to keep up the supply, as our northern streams have, and frequently running a course of several hundred miles before they terminate, their water cannot be drawn off without destroying the crops below them, even depriving the people and animals of water to drink."

With so few natural resources and such little prospect of enlarging them, an element enters into the cost of building a railroad through this region, which will astonish the friends of this route, when the estimates are made upon a practical basis. Where is the engineer that will risk his reputation by estimating the cost of labor, provisions, timber and iron on such a route at an amount which would authorize the most reckless speculator to undertake the enterprise?

If this region be correctly described by Commissioner Bartlett, we do not hesitate to affirm, in an economical point of view, that the construction of a railroad through it is totally impracticable, and that the work will never be accomplished. But were a road built through this desert region, it would be of little value, except as a means of transit from ocean to ocean, and hence one of the chief objects of building railroads; the development of the resources of the country through which they pass would not be obtained in this case.

The foregoing extracts from Commissioner Bartlett's narrative will give our readers a tolerable good idea of the value of the country acquired by the late treaty. The area is estimated at about 20,000,000 acres — about one half the size of the State of Missouri. If we are right in supposing that it includes the town of Santa Cruz, it contains besides that, the town of Messilla on the Rio Grande, and the towns of Tubac and Tucson in the Santa Cruz valley; containing in all a population, according to Mr. Bartlett's accounts, of about 2,600 inhabitants. According to observations taken by Dr. Wislizenus, El Paso is on the parallel of 30° 45′ 50, and consequently is not included in the Mesilla purchase.

TREATY BETWEEN THE UNITED STATES AND MEXICO.

Message from the President of the United States, transmitting a copy of the Treaty between the U. S. of America and the Republic of Mexico.

To the House of Representatives:

I have received information that the Government of Mexico has agreed to the several amendments proposed by the Senate to the treaty

between the United States and the Republic of Mexico, signed on the 30th of December last, and has authorized its Envoy Extraordinary to this Government to exchange the ratifications thereof. The time within which the ratifications can be exchanged will expire on the 30. instant.

There is a provision in the treaty for the payment by the United States to Mexico of the sum of seven millions of dollars on the exchange of ratifications, and the further sum of three millions of dollars when the boundaries of the ceded territory shall be settled.

To be enabled to comply with the stipulation, according to the terms of the treaty, relative to the payment therein mentioned, it will be necessary that Congress should make an oppropriation of seven millions of dollars for that purpose before the 30th instant, and also the further sum of three millions of dollars, to be paid when the boundaries shall be established. I, therefore, respectfully request that these sums may be put at the disposal of the Executive.

I herewith transmit to the House of Representatives a copy of the said treaty.

FRANKLIN PIERCE.

WASHINGTON, June 20, 1854.

Treaty between the United States of America and the Mexican Republic, concluded at the City of Mexico, December 30, 1853.

In the name of Almighty God!

The Republic of Mexico and the United States of America, desiring to remove every cause of disagreement which might interfere in any manner with the better friendship and intercourse between the two countries, and especially in respect to the true limits which should be established, when, notwithstanding what was covenanted in the treaty of Guadalupe Hidalgo, in the year 1848, opposite interpretations have been urged, which might give occasion to questions of serious moment.

To avoid these, and to strengthen and more firmly maintain the peace which happily prevails between the two republics, the President of the United States has, for this purpose, appointed James Gadsden, Envoy Extraordinary and Minister Plenipotentiary of the same near the Mexican Government, and the President of Mexico has appointed as plenipotentiary "ad hoc" his Excellency Don Manuel Diez De Bonilla, Cavalier Grand Cross of the National and Distinguished Order of Guadalupe, and Secretary of State and of the office of Foreign Relations, and Don Jose Salazar Yillarregui, and General Mariano Monterde, as scientific commissioners, invested with full powers for this negotiation, who, having communicated their respective full powers, and finding them in due and proper form, have agreed upon the articles following:

ARTICLE I.—The Mexican Republic agrees to designate the following as her true limits with the United States for the future; retaining the same dividing line between the two Californias as already defined and established according to the fifth article of the treaty of Guadalupe Hidalgo, the limits between the two republics shall be as follows: Beginning in the Gulf of Mexico, three leagues from land, opposite the mouth of the Rio Grande, as provided in the fifth article of the treaty of Guadalupe Hidalgo; thence, as defined in the said ar-

ticle, up the middle of that river to the point where the parallel of 31 deg. 47 min. north latitude crosses the same; thence due west one hundred miles; thence south to the parallel of 31 deg. 20 min. north latitude; thence along the said parallel of 31 deg. 20 min. to the 111th meridian of longitude west of Greenwich; thence in a straight line to a point on the Colorado river, twenty English miles below the junction of the Gila and Colorado rivers; thence up the middle of the said river Colorado, until it intersects the present line between the United States and Mexico.

For the performance of this portion of the treaty, each of the two governments shall nominate one commissioner, to the end that, by common consent, the two thus nominated, having met in the city of Paso del Norte three months after the exchange of the ratifications of this treaty, may proceed to survey and mark out upon the land the dividing line stipulated by this article, where it shall not have already been surveyed and established by the mixed commission, according to the treaty of Guadalupe, keeping a journal and making proper plans of their operations. For this purpose, if they should judge it necessary, the contracting parties shall be at liberty each to unite to its respective commissioner scientific or other assistants, such as astronomers and surveyors, whose concurrence shall not be considered necessary for the settlement and ratification of a true line of division between the two Republics. That line shall be alone established upon which the commissioners may fix, their consent in this particular being considered decisive, and an integral part of this treaty, without necessity of ulterior ratification or approval, and without room for interpretations of any kind by either of the parties contracting. The dividing line thus established shall in all time be faithfully respected by the two governments, without any variation therein, unless of the express and free consent of the two, given in conformity to the principles of the law of nations and in accordance with the constitution of each country respectively.

In consequence of the stipulation in the fifth article of the treaty of Guadalupe, the boundary line therein described, is no longer of any force wherein it may conflict with that here established, the said line being considered annulled and abolished wherever it may not coincide with the present, and in the same manner remaining in full force where in accordance with the same.

ARTICLE II.—The Government of Mexico hereby releases the U. S. from all liability on account of the obligations contained in the 11th article of the treaty of Guadalupe Hidalgo,* and the said article and the thirty-third article of the treaty of amity, commerce and navigation between the United States of America and the United Mexican States, concluded at Mexico on the 5th day of April, 1831, are hereby abrogated.

ARTICLE III.—In consideration of the foregoing stipulations, the Government of the United States agrees to pay to the Government of Mexico, in the city of New York, the sum of ten millions of dollars, of which seven millions shall be paid immediately upon the exchange

* The Treaty of Guadalupe Hidalgo will be found in the first vol. of the Western Journal, page 456 to page 462, and at page 507.

of the ratifications of this treaty, and the remaining three millions as soon as the boundary lines shall be surveyed, marked and established.

ARTICLE IV.—The provisions of the sixth and seventh articles of the treaty of Guadalupe Hidalgo having been rendered nugatory for the most part by the cession of territory granted in the first article of this treaty, the said articles are hereby abrogated and annulled, and the provisions as herein expressed substituted therefor. The vessels and citizens of the United States shall, in all time, have free and uninterrupted passage through the Gulf of California, to and from their possessions situated north of the boundary line of the two countries; it being understood that this passage is to be by navigating the Gulf of California and the river Colorado, and not by land without the express consent of the Mexican Government, and precisely the same provisions, stipulations and restrictions, in all respects, are hereby agreed upon and adopted, and shall be scrupulously observed and enforced by the two contracting governments, in reference to the Rio Colorado, so far and for such distance as the middle of that river is made their common boundary line by the first article of this treaty.

The several provisions, stipulations and restrictions contained in the seventh article of the treaty of Guadalupe Hidalgo, shall remain in force only so far as regards the Rio Bravo del Norte, below the initial of the said boundary provided in the first article of this treaty — that is to say, below the intersection of the 31st deg. 47 min. 30 sec. parallel of latitude with the boundary line established by the late treaty, dividing said river from its mouth upwards, according to the fifth article of the treaty of Guadalupe.

ARTICLE V.—All the provisions of the eighth and ninth, sixteenth and seventeenth articles of the treaty of Guadalupe Hidalgo shall apply to the territory ceded by the Mexican Republic by the first article of the present treaty, and to all the rights of persons and property, both civil and ecclesiastical, within the same, as fully and as effectually as if the said articles were herein again recited and set forth.

ARTICLE VI.—No grants of land within the territory ceded by the first article of this treaty, bearing date subsequent to the twenty-fifth day of September, when the Minister and subscriber to this treaty on the part of the United States proposed to the government of Mexico to terminate the question of boundary, will be considered valid, or be recognized by the United States, or will any grants made previously be respected, or be considered as obligatory, which have not been located and duly recorded in the archives of Mexico.

ARTICLE VII.—Should there at any future period (which God forbid) occur any disagreements between the two nations which might lead to a rupture of their relations and reciprocal peace, they bind themselves in like manner to procure, by every possible method, the adjustment of every difference; and should they still in this manner not succeed, never will they proceed to a declaration of war without having previously paid attention to what has been set forth in article twenty-one of the treaty of Guadalupe for similar cases, which articles, as well as the twenty-second is here re-affirmed.

ARTICLE VIII.—The Mexican Government having on the 5th day

of February, 1853, authorized the early construction of a plank and railroad across the Isthmus of Tehuantepec, and to secure the stable benefits of such transit way to the persons and merchandise of the citizens of Mexico and the United States, it is stipulated that neither Government will interpose any obstacle to the transit of persons and merchandise of both nations; and at no time shall higher charges be made on the transit of persons and property of citizens of the United States, than may be made on the persons and property of other foreign nations; nor shall any interest in said transit way, nor in the proceeds thereof, be transferred to any foreign government.

The United States, by its agents, shall have the right to transport across the Isthmus, in closed bags, the mails of the United States not intended for distribution along the line of communication; also, the effects of the United States Government and its citizens, which may be intended for transit, and not for distribution on the Isthmus free of custom-house or other charges by the Mexican Government. Neither passports nor letters of security will be required of persons crossing the Isthmus and not remaining in the country.

When the construction of the railroad shall be completed the Mexican Government agrees to open a port of entry in addition to the port of Vera Cruz, at or near the terminus of said road on the Gulf of Mexico.

The two governments will enter into arrangements for the prompt transit of troops and munitions of the United States, which that government may have occasion to send from one part of its territory to another lying on opposite sides of the continent.

The Mexican Government having agreed to protect with its whole power the prosecution, preservation and security of the work, the United States may extend its protection, as it shall judge wise, when it may feel sanctioned and warranted by the public or international law.

ARTICLE IX.—This treaty shall be ratified, and the respective ratifications shall be exchanged at the city of Washington, within the exact period of six months from the date of its signatures, or sooner if possible.

In testimony whereof, we, the plenipotentiaries of the contracting parties, have hereunto affixed our hands and seals at Mexico, the thirtieth (30th) day of December, in the year of our Lord one thousand eight hundred and fifty three, in the thirty-third year of the independence of the Mexican republic, and the seventy-eighth of that of the United States.

JAMES GADSDEN, [L. S.]
MANUEL DIEZ DE BONILLA, [L. S.]
JOSE SALAZAR YLAREGRUI, [L. S.]
J. MARIANO MONTERDE, [L. S.]

ARTICLE V.

Agricultural Capacity of California.

TRASK'S GEOLOGICAL REPORT.

We are indebted to the politeness of John T. Trask, M. D., State Geologist of California, for a copy of his "Report on the Geology of the Coast Mountains, and part of the Sierra Nevada, embracing their industrial resources in Agriculture and Mining."

"This Report embraces the examination of a district of country included within 120° 16′ and 122° 32′ west longitude, and from the thirty-fifth parallel to the thirty-ninth degree of north latitude, inclusive of the Coast Mountains and mineral districts." Many objects which we think should be embraced in a thorough geological survey, have been omitted in this; it is nevertheless among the most interesting works of the kind which has come under our notice.

It was not to be expected that a thorough examination and survey embracing all proper objects and details could have been undertaken at this early stage in the history of California, but in our opinion, the State has been quite fortunate in the selection of an individual to make the first official exploration.

The author is a discriminating observer selecting his objects with an eye to their more immediate importance in a practical point of view; and confining his report chiefly to the statement of facts, leaves the reader to indulge in philosophic speculations, and form his own theories.

Hitherto the gold of California has constituted its greatest attraction. But we are persuaded that the time is not far distant when agriculture will become its chief source of wealth and prosperity.

The lively interest we feel in this branch of industry in California, has induced us to omit, for the present, any notice of its mineral resources, and to fill this paper with observations touching the capacity of its soil and climate to produce the necessaries and luxuries of a civilized people.

In an agricultural point of view, the valleys of Sacramento and San Joaquin constitute the leading feature of the State. But owing to the difficulty and perhaps impracticability of irrigating them from streams flowing on the surface, they have been regarded as of little value for agricultural purposes. The author concludes that these valleys may be irrigated by the use of artesian wells. Should his opinion and calculations in respect to the depth of boring be verified, these valleys are destined to become as famous for their productiveness as the valley of the Nile.

To show the grounds of his opinion upon this subject, we extract the following geographical description of these valleys.

STRUCTURE OF THE VALLEYS OF SACRAMENTO AND SAN JOAQUIN.

These valleys form a "single geographical formation,"* stretching from the terminal spurs of the Cascade Mountains at the north, to the junction of the Sierra Nevada with the southern terminus of the Monte Diablo range with the thirty-fourth parallel of north latitude. The length of the valley is about three hundred and eighty miles in length on an air line, with a breadth of fifty miles at its widest point.

The general appearance of the valley is that of an extended plain composed of alluvium, and this opinion would obtain in the mind of any person whose line of travel should lead him over the lower terraces of the plain, or what is denominated its bottom lands. It is only by making a transverse section of this plain that we should be able to arrive at any correct conclusions of its structure, and peculiarities of its formation; by pursuing this course, very distinctive and marked features are observable of different periods of elevation to which this portion of the country has been subjected subsequent to its emergence above the level of the sea.

To arrive at a correct understanding of the formation of the "California Basin,"† we must first observe the rocks which form its borders, their character, position and relative age; and in doing this it will be necessary to pass beyond either of its margins to ascertain the facts on which an opinion may be founded.

On the east side of the basin and at the distance of fourteen miles from its border, we find the first out-crop of the primitive rocks, (granite) on hills attaining an alevation of about one thousand feet above the sea Resting upon this, we find detached masses of sandstone, which increase to a well defined formation a few miles of the west; immediately below the latter, a bed of slate makes its appearance, having a dip varying from thirty degrees to nearly a vertical position, but as the lower hills are approached, the inclination of these rocks become much less. Below the slate, a conglomerate having an argelaceous cement is found, firm in its texture, with a dip corresponding to the other rocks with which it is associated; the pebbles composing the conglomerate are quartz, jasper, granite and trap; at times this rock is highly ferruginous. The components of the rock are made up from rocks found in the mountains to the east, and must have been formed subsequent to the appearance of the older trapean formations of this part of the country.

Succeeding the conglomerate,‡ which by way of distinction, we will denominate *Eocene*, another bed of fissile clay slate and aluminous clay occurs, having a thickness of about one hundred feet; these rocks comport in position with the other sedimentary rocks above them, and are found resting directly on the granite, and other igneous rocks far into the interior; in the lower hills their structure is fissile, cleaving

* Col. J. C. Fremont.

† Being similar to the London and Paris Basins, this name will be adopted.

‡ This suite of rocks are often confounded with another group, of the same character which appear of more recent date, and are found south of Consumnes river only.

with ease over considerable surfaces, while in the eastern parts of th mountains they have often acquired a crystaline structure from con tact with other and more recent volcanic rocks, and such as have broken through and disturbed the primitive formation.

On the western side of the valley or basin, the series do not follow in precisely the same order as occurs on the east; the sandstone and slate of the same age is found, but the conglomerate is wanting; if i exists, it is completely obscured from view, except on the west slope of the coast mountains towards the sea and its occurrence there is a reason for the supposition that it does exist below the other stratified rocks on their eastern slope. Above all the others, the miocene rocks are found disturbed a d cut through by the recent volcanic intrusions of that period.

The following then will be the arrangement of the rocks from below upward:

East of the Sacramento river.		West of the Sacramento river.	
Primary Rocks.	*Granite.*	*Primary Rocks.*	*Granite.*
	Slates.		Slates.
	Conglomerate.	Uncertain.	Conglomerate.
Sedimentary.	Slates.	*Sedimentary.*	Sandstone, Eocene.
	Sandstone.		*Sandstone Miocene.*
			Recent volcanic cutting the latter.

With this arrangement of the stratified rocks which pass under the California Basin, it is obvious, that the waters flowing at the line of junction between the sandstone and the slate-rocks below them, must pass under the sides and central parts of the valley, varying in depth as the distance from either of its borders increases.

It must be remembered that the dip of the sedimentary rocks on which the alluvium of the valley reposes, will increase or diminish the distance that may be necessary to bore for obtaining water, as the inclination of these rocks is greater or less; and with the view to demonstrate if possible, (or at least approximately) the depth that it might be necessary to sink in order to obtain a plentiful supply of water for agriculture or other purposes, an examination of both borders of the basin was made of fifty miles in length, and the mean of all the dips taken.

It was found by measurement that the surface of the basin rises at the average rate of six feet per mile from the river to either of its borders. Taking the grade of the surface with the lowest average dip of the rocks where they pass under it, (being equal to twelve degrees,) and assuming that the sedimentary rocks decrease in inclination, as the distance increases, which is probably the case, it will be found necessary to reach the depth of 775 feet at the City of Sacramento, in order to obtain a permanent supply of water.

This presumption is based upon the fact that a constant source does not exist above the conglomerate, and this point is selected more for the purpose of exhibiting the greatest probable depth at which a permanent supply of water would be found; the probabilities of obtaining water at much less depths is strong, and amounts to almost a certainty, that water would be found immediately below the sandstone, and above the first slates; in that case the depth would be diminished about two hundred and fifty feet.

If a correct idea of the inclination of the sedimentary rocks is presented in the diagram, we shall have the following depths at different distances from the centre of the basin, on both sides.

On the west side of the river.		On the east side of the river.	
11 miles, ...	700 feet.	Sacramento City, . .	775 feet.
15 "	650 "	12 miles, ...	700 "
22 "	550 "	17 "	650 "
		20 "	625 "

At the distance of twenty miles the rolling hills are entered in which springs usually abound.

The rocks on both sides of the valley are arranged in the order in which they occur, as observed by the outcrop.

Sandstone.		Sandstones and upper Slates.
EOCENE,		
Slates,		Conglomerate, EOCENE.
Fosil Sandstone,		Lower clay Slates.
Trap,		
Granite,		Granite.

These rocks included within the Eocene lines are classed by Mr. Dana, as the early sandstone, slates, and conglomerates, to distinguish them from the more recent tertiaries among the Coast Mountains.

The geological structure of this basin was noticed by Mr. Tyson in 1849. He examined it with a view to ascertain whether a deposit of coal might not exist below the surface; and also whether its structure would indicate the means of supplying water for agricultural and mechanical purposes.

In regard to the first question he says: "The first query is answered by the fact of finding the comparatively recent strata of a formation, not older than the eocene and miocene periods, resting immediately on the metamorphic or hypogene rocks of ancient origin, the remaining members with all the sedimentary rocks of older date being entirely wanting, and the coal formation, which belongs to the lower of the secondary series." A coal formation under the basin is therefore out of the question, unless deeply seated, and entirely covered, edges and all, by the sedimentary rocks above noticed.

The character of the soil in many parts of this valley will render it of little importance as an agricultural district, unless water in ample quantities for irrigation can be obtained. (These remarks apply particularly to the upper terrace of the valley on each side of the river.) And we hope that attention may be called to this very important subject of making the extensive areas of the arid districts of the basin available for market and agricultural purposes."

Experience has demonstrated the almost certainty of obtaining water and in sufficient quantities for agricultural and other purposes, in all valleys resting upon sedimentary formations and having a basin-shaped structure, and where the different beds have a degree of uniformity or regularity in their position, and are of a texture that will admit the free percolation of water through the superior beds and sufficiently firm to prevent its escape in those below.

These conditions are all fulfilled in the basin of the Sacramento, and from the united testimony of different observers, we have ample evi-

dence that the sedimentary formations of one side are the same as those upon the other, with the exception, perhaps, of the conglomerate.

The absence of the conglomerate on the west side of the basin; will not affect the result of obtaining water by the means proposed. The clays and clay-slate, below the sandstone, appear on both sides, and are sufficiently impervious and firm to prevent the escape of any water that may rest upon them.*

The SALINAS VALLEY "is about ninety miles in length, and has a varying breadth from eight to fourteen miles; it is situated between the Coast Mountains and those denominated the Monte Diablo Range, and is bounded on the east by that spur of this range in which the Gabilan it situated.

The Salinas River flows through this plain from the Cadesal Pass in which it has its rise, to the bay of Monterey." This valley is described as consisting of three well defined terraces running through nearly its entire length. Commencing on the west side of the river, the lower terrace is about four miles wide, and is composed of a rich alluvium. The second terrace rises abruptly to the height of eleven feet above the first, and consists of a similar soil, though not in so fine a state of disintegration. Both terraces support a dense growth of indigenous grasses and plants, furnishing an abundant supply of pasturage for stock.

With a sufficient supply of water for irrigation this valley will produce an immense quantity of grain, while the third terrace and even the *Mesa* or table lands of Salinas produces excellent pasturage: the wild oat growing in great abundance.

A large portion of the valley, within eight or ten miles of the coast, and on its south-east border and center, is made up of low wet lands, covered with willows and tule, these terminate in lagoons and sloughs as they approach the coast, and contain sufficient depth of water to float a medium sized vessel to the bay of Monterey. The only obstacle that renders these waters innavigable for some distance into the interior of the valley, are the bars of drift and sand which are thrown up by the surf on the coast: a good and substantial breakwater, constructed at some one of these points, would render navigation safe.—The extent of land in the interior that would be affected by a measure of this kind would be great; it being not less than one hundred and

* Since October last, there have been three Artesian borings, carried to depths within one hundred feet, on the valley of Santa Clara, and in the vicinity of San Jose. The result of each has been successful, and a head of water from four to nine feet has been obtained. These indications of water so near the surface and in such quantities, will much enhance the value of agricultural land throughotu this valley and render available much that would otherwise have laid unoccupied and unimproved for years.

fifty miles in length, and possessing capacities for agricultural production equal to any in the State.

This will appear the more evident and necessary, when we find that the lower bottoms above the Salinas valley are capable of producing a wheat crop (at thirty-two bushels per acre,) sufficient to meet the demands of a population numbering three times that of the present State—say nine hundred thousand."

There are other fertile valleys of considerable extent described by the author, but lest we should extend this article to too great a length, we will conclude with a description of the

SOILS OF THE VALLEY SANTA CLARA AND SHORES OF THE BAY SAN FRANCISCO.

The soils on the Bay San Francisco differ much on its eastern and western sides; both borders of the Bay present the tertiary series, but both do not present the trapean rocks to the same degree of development; this, then, of course, will cause a distinctive and marked difference in the productive capabilities of either shore. It will be found, that in all the soils which have been derived, in whole, or in part, from rocks more recent than the tertiary group, that a more extensive and varied adaptation to agricultural purposes will be present; this will be particularly manifest in those sections where the tertiaries, containing organic remains, enter somewhat largely into the components of the soil produced from such sources.

We often meet an extensive and even tract of country lying at the base of a range of hills of the character named above, which are found not to possess so high a degree of fertility as an adjoining section, yet both have derived their soil from the same sources; it becomes not only interesting but important to ascertain the cause of such a discrepancy, and an attentive examination will often point out a natural obstruction of a mechanical nature which has thus been the cause of the impoverishment which may be present. In this case a barrier will often be found among the foothills which has prevented the uniform distribution of the disintegrated rocks above, rendering the plain within its line less productive, rather than the introduction of any new agent, except, perhaps, that derived from the rocks forming that barrier, the amount of which would be inconsiderable, compared to the mass of alluvium beyond.

In illustration of this a single case only will be mentioned. On the Valley Santa Clara, a few miles east of San Jose, the mountains are capped with fossiliferous sandstone for miles in extent, north and south. On examining the slopes of these hills and the broad ravines among them, a rich and deep soil was found to cover the whole, and the vegetation growing upon them bore a just relation to the character of the ground on which they flourished. Passing to the westward toward the valley it was found that the same character of soil continued to the first hills rising from the plain, these bearing an attitude of one hundred feet above its level. On reaching the summit of these hills, the rich, mellow soil to the east instantly gave out, and in its place a heavy, clayey covering was found upon the surface for a considerable distance into the valley; this transition occurred within so

short a distance that I was led to examine more particularly the cause producing it, and accordingly followed the line of these hills until an outcrop of these rocks were found; they consisted of aluminous and chloritic slates, having a high inclination and dipping to the west; from their position they presented a perfect barrier to the passage of the richer soil of the hills passing on to the valley in any other junction than north and south. As far as this line of slates extended, the valley beyond partook, in a greater or less degree, of the character that would be produced by their disinteration, and ill adapted generally to purposes of agriculture unless by artificial application of reclaiming agents and tillage. As soon as the slates began to disappear in the foothills, the character of the soil on the plain beyond assumed a different appearance, and a marked and corresponding change in its vegetable productions.

A mechanical impediment simply is the cause of unproductiveness in such cases, and in instances of this kind, the remedy usually abounds in abundant quantities and at short distances from the points where it may be required.

On the south-east shores of the Bay San Francisco, there are large areas of land that at the present time are considered useless for agricultural purposes, from their low position and semi-argilaceous character; they have often been denominated "mud flats," and heretofore have been considered unadapted even to grazing for sheep. These flats generally extend (toward the bay,) one or two miles from what are considered available and good agricultural lands. Their general appearance to the passer-by is such as would not be likely to impress a person very strongly in their favor, as lands retaining much fertility, but from their superficial appearance would be regarded as a poor representation only of a salt meadow, productive of little else than the common samphire. But such is not the fact, and if experience and experiment have any value or weight, they will be thrown in the balance to the favor of those lands; experiments have been made during the past season on these sections, which cannot fail to convince us of the fact, that the opinions heretofore entertained respecting the available character of a large portion of these districts, are entirely erroneous. A single experiment illustrating their capacity for production if properly tilled, will be given.

Near Uniontown, in the County of Alameda, several acres of land, producing the *samphire* on their flats, was broken up and planted to corn; in one case it was sowed in drills; the corn continued to flourish until September which was the last time I saw it; and at this time the stalk of that in drills had acquired an average height of about nine feet. On the south side of the arroya Alameda another field was planted in hills, which was equal, if not superior in heigth. The soil when broken up, is rich and highly productive in other grains, notwithstanding the meagre appearance it presents prior to tillage, and will in a few years be as successfully and largely cultivated as any other of the valley sections. The *saline lands* of the interior sections are also of the same character, to a certain extent, and if properly tilled are equally productive. Near the rancho San Felipe, Santa Clara County, a similar circumstance was met with; the corn grown upon these lands was being harvested in September and produced a full and well

formed ear, proving not only adaptation of soil, but climate—for the production of this staple in California. The latter case, the lands were 225 feet above the sea, and the field on every side except the south-east was covered with a thick growth of the salt grasses and other kindred plants (samphire) and when free from water the lands were covered with a saline incrustation.

Under a proper course of treatment these lands will be made available for the purposes of the agriculturist, and our already large domain of arable lands thus much increased. The situation of these lands in the interior is such, that they may be easily reclaimed should they ever fall within the jurisdiction of the State, which undoubtedly they will under the law regulating "saline lands." In the counties of San Francisco, Santa Clara and Alameda the wet land that may be made available by drainage is about seventy square miles, exclusive of the "saline lands" at the southern part of the County of Santa Clara.

Most of the valley sections of this range of country is arable land, and that which is not can easily made so when required; the agents for bringing this about being found in the adjoining hills to the east. The character of the soil and climate adapts it to all the productions of temperate climates, and where local position modifies the climate of any section, it is found capable of producing plants of the tropical latitudes.

The extreme south-eastern part of this valley would be adapted to the growth of foreign fruits and other products, but it must be beyond the influence of the cold sea-wind that passes inland across the range of lower hills which divide the Salinas, Pajaro, and Santa Clara Valleys, the effect of which would be to blight the fruit, though the plant or tree might continue to thrive.

The low hills that flank the east side of the valley contain all the elements required for the culture of tropical plants and fruits; the climate and soil will be found adapted, and the only agent that appears in the least to be wanting is water sufficient to supply the demands of those plants. From the appearance of small lagoons and rivulets at different elevations it is presumable that a sufficient quantity of this agent may be found a short distance below the surface.

As a general rule the mountains lying upon the east border of the valley Santa Clara are covered with a soil superior to that of the plains, and of much greater depth. I have measured the depths of these soils in many places, and where it is well developed have found it varying from four to eleven feet for miles continuous; its extreme fertility produces heavy crops of the native grains and grasses which annually contribute to its increase by their decomposition.

Although these lands are situated within the reach of the sea-breeze from the Bay of San Francisco, they are protected from its cold by the slope of the hills and the modifications of its temperature acquired in its passage down the bay before reaching the northern portion of the valley. So much is the temperature increased that an addition of ten degrees is often required in its transit from San Francisco to the head of the valley, a distance little rising fifty miles. This increase of temperature in the air is accompanied with an increase in its capacity for moisture, hence it is usual to find a slight aqueous haze, which results from the condensation of its moisture, hanging about this en

tire range of hills during the summer months, and is usually seen early in the morning.

At this time and for a short time after sun-rise the leaves of plants in these hills are covered with moisture, when no trace of this deposit is observable on the plains. The foreign horticulturist seems to have seized upon the natural advantages which these mountains present for the culture of the vine and other fruits, prefering these elevated situations to the lower plain lands, the climate and soil being more congenial to their growth. The altitude at which the first qualities of the grape will flourish in these mountains (Monte Diablo Range) is seventeen hundred feet above the sea, the fruit produced equals tht grown in lower situations; the temperature at this elevation through the night is higher than on the plains at their base, and sufficiently comfortable to sleep without shelter.

But a very few years will elapse before these "barren" mountains will yield a handsome income to the planter, and a large revenue to the State, from the taxable property that will be found in these mountains, arising from the production of the vine alone; some idea of the extent to which it is now being propagated may be obtained when it is stated that nearly two hundred thousand sets have been put into the ground during the past year, and on one ranch alone over twelve thousand new sets were placed in the ground last season, in addition to those already in bearing condition on the same farm.

The absence of timber in these mountains is one of the most serious objections to the settler, if this objection can be removed there is no reason to doubt but that large tracts of this fertile district would command a population that would soon approximate that on the plains. It would not be difficult to produce a forest growth of trees upon these mountains, one that would prove useful as well as ornamental, conducing to health, comfort and luxury, as well as profit. The history of the Guava furnishes us with some facts on this point that are well worthy of notice; the tree is of rapid growth, spreading itself over large districts in a very few years. In Mexico it attains a height of forty feet, and grows at elevations of five thousand feet; its wood is used for fuel and many other purposes, and from its fruit the guava jelly is manufactured, and forms an extensive article of commerce.

Fifty years ago this tree was introduced at the Sandwich and Society Islands; it has in that short period of time formed one of the principal forest trees of those islands, and reaches the summit of their highest hills. A tree of this kind introduced into our timberless hills would in a short time render the barren aspect they now present, more pleasing and profitable as well as useful. There can be but little doubt that this tree will flourish in this country, as it is found so to do in a climate equally cool as that in which it would be required here. Other varieties of fruit bearing trees of foreign climates will flourish in these mountains; among them may be mentioned the date, prune and fig, and in this country we possess an advantage in the preparation of the two latter fruits for the market, which is seldom found even in countries where they flourish best, viz: a clear, dry air, or containing but a small degree of moisture, a most essential requisite in forming a good commercial article. Often the entire fruit crop is ruined in the drying process in countries where these fruits abound, (and where all

conditions for their propagation are not more fully developed than in this country,) from the presence of too great a quantity of moisture in the air, a circumstance that cannot exist in this country south of the county of San Francisco.

We have the most ample proofs of the capabilities of our soils in the interior, in the production of the foreign fruits. In addition to the above, the olive and the almond flourish and produce plentifully, and though the latter is not indigenous, the luxuriance with which it grows and its plentiful production of fruit, must be received only as another evidence of the fact above stated. The value of these fruits as regards their quality, suffers no deterioration from having been naturalized to our climate, but in the case of the latter named fruit, it is found to be materially benefitted by the change, for as it loses none of its flavor it becomes the more valuable from its increase of size, being nearly double that of the ordinary fruit of the market.

Respecting the main body of lands on the valley and shores of the bay, but very little of which is not adapted to agricultural purposes, it may be said to cover an area little short of six hundred square miles, nearly all of which is adapted to the cultivation of the cereals and root crops. The higher table of the valley produces excellent corn, and the season though dry permits this crop to mature well. I observed several corn fields on the high terrace of the valley last season, flourishing well at altitudes of three hundred and sixty to four hundred and ten feet, and in localities where it would hardly be supposed from its external appearance, that moisture sufficient to rear a blade of grass could be found. The cause of this productiveness in these localities, is in a great measure attributable to the existence of a small quantity of sulphate of lime in these apparently dry soils, derived from a limestone formation in these mountains, and which extends south beyond the Almaden district. The detritus of this rock is found mingled with fragments of other rocks containing ferruginous pyrites in a decomposing state, hence the key to its appearance in this locality, and in the case before it serves the purpose of an absorbent of moisture, thus materially facilitating the growth of crops in these sections.

ARTICLE VI.

The Universal Prime Mover.

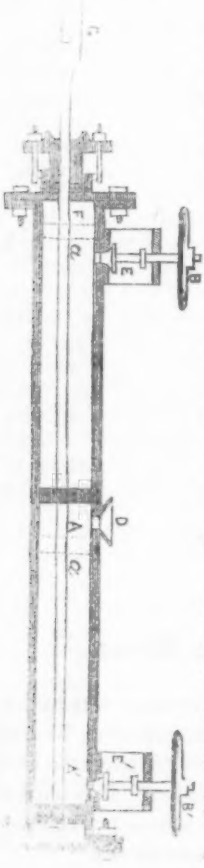
We publish the following description of a new power at the request of the discoverer. We express no opinion respecting its merits, but are informed that scientific and practical individuals who have examined the model think favorably of the invention. It is obvious that if the views and calculations of the projector should be realized, he will occupy a place in the front rank of modern inventors.

We are informed that it will cost about five hundred dollars to make a working machine. Not possessing means to construct a complete model, Mr. Graham desires to find some enterprising individual who

will advance the amount necessary and take an interest in the discovery. Will not some of our intelligent and public spirited citizens call on Mr. G. and examine into the merits of his discovery? This much at least, is due to one who has devoted his time and talents in search of a cheaper and more convenient motive power than any hitherto brought into use.

MERCHANTS' EXCHANGE, No. 78 Chesnut street,
St. Louis, Mo., July 4th, 1854.

SIR:—I hope you will give the following description of a machine which has been modelled in this city, a place in your Journal.
I have called it "THE UNIVERSAL PRIME MOVER."



G, is a Piston Rod, having two heads A, A′, moving air-tight in a Cylinder F, F′. In the center D, is a conical aperture for admitting the external atmospheric pressure to the piston heads A, A′. There are holes at E, E′ with air-tight valves, through which any air that gets in, between the piston heads and these holes, is expelled by every stroke.

The action of the cylinder is produced by moving the pistons until the heads come into the position of the dotted lines a, a′; and then letting them shoot backwards to the end marked F′.

The motion thus produced is continuous and accumulative.

In proof: Previous to motion the air is in equilibrium throughout the cylinder. On moving the pistons into the position a, a′, the air in the portion from A, to E, is expelled, the small quantity in F, is compressed, that in F′ expands from F′ to a′, and becomes greatly rarified, while the valve E′ is tightened down by the external atmospheric pressure.

On letting the pistons go, the piston a, propelled by the compressed air in F, and the piston a′, by the atmospheric pressure through D, shoot into F′, where the air is again compressed, and the action renewed.

The degree of compression in F, F′, can be accurately regulated by the length of the crank of the Flywheel, to which it is attached; and the latter by its momentum aids the before mentioned causes in giving the pistons a reverse motion at the end of each stroke.

We see, therefore, a continuous reaction. The power being constant, viz: the atmospheric pressure through D, and the vacuum being constant; as the pistons alternately expel any air, that may leak nto the cylinder, through the valves E, E′.

It is also accumulative; as the whole momentum of each stroke is added to the constant pressure through D, by the recoil of the compressed air in F, F′—and this addition far exceeds the friction of the pistons, which is not more than 30 lbs.

The theoretical power of this cylinder is very great. Ex. gr.: Suppose the internal length to be 3′ 0½″, the diam. 3″, and the distance between the center of the valve holes and the ends of the cylinder 2⅝″, we have the following results.

The column of air in F′, is 2⅝″ long. The distance between F′ and a′, into which it will expand, is 1′ 4″, allowing 1½″ for the thickness of the piston heads, and supposing it to stop within ½ in. of the hole D. Hence $\frac{21}{128}$=·16406, is the ratio of its expansion, and 14·7+16406 =2·41 lbs. per square inch is the reduced pressure of the rarified air in the portion a′, F′; so 14·7–2·41=12·29 lbs. is the working pressure per square inch of the external atmosphere. Deducting the area of the ⅞″ rod, the area of each piston acted upon by the atmosphere is 6·46 square inches, and 12·29+6.46=79·39 lbs. is the total pressure.

From the model I have here, I estimate the friction of the pistons and rod at 30 lbs. This leaves 49.39 lbs. for the effective pressure.

The velocity of air rushing into a vacuum has been estimated at 1296 feet in a second. Hence, 1296–(1296+·16406)=1083.38 feet per second, will be the velocity due to the vacuum above stated; and 49·39+1083.38=53,508·13 lbs. is the momentum of the first stroke, after deducting friction and allowing for the deficiency of the vacuum. If, however, the crank is of such a length as to compress the air in F, F′, to a length of ⅞ in., we have a force of 2.71 atmospheres added to the pressure, or 39.83 lbs. per square inch, on the ends of the pistons next F, F′. Hence, as the area of the head next F′ is 7·06 inches, we have (12·29+6.46)+(39·88+7.06)=360·58 lbs. for the pressure of the second stroke, and (deducting friction) 330·58+1083 38=328,143·76 lbs. is the momentum of the second stroke.

It is evident, that this engine will accumulate momentum to any limit that iron can bear, unless the vacuum is cut off, before the pistons reach the holes E, E.′

The handles B, B′ being raised stop the engine, by preventing the formation of the vacuum. There are various ways of working these valves, so as to procure any degree of vacuum lower than 12·29 lbs. per square inch, and consequently of varying the velocity and power at will.

This machine originates an idea never put forward before—that of a *continuously increasing* "Perpetual motion"—showing that there is no limit to velocity or power but the consistency of matter. It allows of the direct action of what philosophers have called Gravity—without any artificial medium.

"I made this machine for driving an Aeronout" (which I hope will be shortly taken up by those interested in the advancement of mankind) as it does not require coal, or water, and altogether weighs only about 120 lbs. It is applicable for any kind of locomotion; will drive buggies or omnibusses, ploughs or any other agricultural instruments. Any one willing to test the machine by steam, (as the present model is not sufficiently perfect to work air tight,) can do so at Mr. Gill-

fort's foundry, opposite the Gas Works, and if willing to patent it. Mr. Graham will be glad to treat with him.

Hoping you will give this communication a place in your Publication, I am, sir, very respectfully, &c.

ALEX J. GRAHAM.

Article VII.

(From the U. S. Mining Journal.)

ON THE DECOMPOSITION OF ROCKS, AND THE RE-COMPOSITION OF THEIR METALLIC CONSTITUENTS.

BY JOHN CALVERT, ESQ.

The large quantity of gold found in the detritus of Australia, California and other acknowledged gold regions, has called forth much speculation from many scientific minds as to the origin of so much alluvial gold, when the sources from which it appeared to emanate (viz., the quartz veins,) have so generally failed to produce it on being entered into or worked below the surface, thereby causing so much disappointment to gold mining speculations, the promoters thinking they had only to rip open the goose to ensure to themselves a plentiful harvest of golden eggs. The delusions and failures of gold quartz companies are such acknowledged facts, that it will be unnecessary for me to enter upon that part of the subject here. The origin or development of gold may be thus classified,—viz.:

1. When precipitation takes place simultaneously with the intrusion and upheaval of the palæozoic formation.

2. An after-precipitation, through the electric and atmospheric decomposition of the various rocks and metalliferous formations.

But a small portion of the gold we use owes its origin to the first circumstances; and gold having a surface determination, it will always precipitate itself there, and therefore would long ago have been an extinct metal in inhabited countries, were it not for the fact of the after precipitation and development which is always going on wherever the matrix containing it is thrown under circumstances sufficiently kind to render the decomposition of the matrix favourable to the re-composition of the gold it may contain.

By far the greater portion of the gold we obtain at the various diggings and mines, ows its relation and development to this after-precipitation. The vast granite ranges in Australia and other places, the flanks of which are so constantly undergoing decomposition, and keeping up the supply of detritus and sand in the rivers and creeks which flow from them, are not found to contain any gold at the head of the said creek, or in the granite detritus, until it has been washed into hollows, and beds of creeks and rivers, in company with an accumulation of organic matter; then, when sufficient moisture, the battery-power is active enough to precipitate the gold in nodules of various

sizes, just in the same way that flint forms in chalk, or iron in bogs. An atmospheric decomposition of granite, containing a very small quantity of any other metal, is not sufficient to develope the gold it contains; but in the case of many of the various metallic ores, when in their combination exists sufficient of the opposing metal to create a self-acting battery, they will, after being exposed to a succession of winters' rain and summers' heat, be decomposed, and the gold and other metals it contains will be found to have re-composed themselves in other chemical states. But in many cases of rapid decomposition the waste of such a tender electric metal as gold will be very great, and more especially when decomposed by heat.

Nature's workings are beautiful, but in many instances very slow. If we would work gold on a large scale, we must seek it in other forms than its precipitated or metallic state; or the alternative will be to vigilantly search for the comparatively small quantity precipitated, and having worked that, wait patiently for some centuries whilst Nature accumulates more. I have watched the decomposition of rocks in many countries, have studied this subject the greater part of my lifetime, and have long since fallen into all the blunders and errors that so singularly characterise the gold-seeker's career, and which seem to so engross the public mind at present.

Whilst on my geological researches in Australia, in 1846, I discovered a boulder of granite, partially embedded in rich black soil, at the side of a river; it seemed as though it had been undisturbed for many years, it was in a state of decomposition. On the under side it was mostly decomposed, and tinged with the oxide of iron; I could pick that part to pieces with my fingers; there were visible nodules of gold in all that portion that yielded to my fingers; there was no gold visible in the upper portion. This was a problem set me by Nature, which I toiled for many weeks and months to solve; many were the experiments and methods I fruitlessly tried. I could decompose the upper portion of that block of granite, but the gold was wanting. After some time I travelled back to the spot from which I had obtained it, carefully watched the chemical and electric conditions under which it had there been acted upon. I returned, tried fresh experiments, and succeeded in decomposing a piece of the upper portion of the granite block; the only difference was, that the grains of gold obtained were smaller than those formed by the natural process. Ever since that time I have been able to perform the same experiment successfully upon rocks and ores, providing they contained any.

Now, as the great and Almighty Providence has so generously seen fit to invest in man the power to assist and force so many of Nature's productions, may it not likewise be within his scope to forestall Nature's decomposition of the vast masses she so slowly attacks, and by artificial means to perform that in a week or month which otherwise would take years or centuries?

As to the exact geological period at which the palæozoic rocks became severally charged with gold, and under what electric law and then existing condition of polarity it was dispelled and distributed, is beyond the limits of this brief paper to discuss; sufficient for my present subject that it has been found locally distributed in the older form-

ations, and in the debris accumulated from them, over the whole world, wherever it has been looked for. All the largest masses of gold that have yet been found show undoubted proofs of having emanated from various quartz veins, and to have been mere surface incrustations belonging to those veins.

I have often stated that gold has a surface determination, and I believe all that found its way to the surface, simultaneously with the formations being charged, providing the temperature and magnetic force were congenial, immediately precipitated itself there.

I divided my subject into two classes:—

1. When precipitation takes place simultaneously with the intrusion and upheaval of the palæozoic formation.

2. An after-precipitation, through the electric and atmospheric decomposition of the various rocks and metalliferous formations.

I do not mean to convey the idea that all the ancient intruded rocks have charged the surrounding formations with gold; that gold may now be found in some of the oldest granites is a fact beyond doubt, but I believe its owes its presence there to some of the youngest and most recent intrusions and disturbances—patches and portions only of the surrounding rocks become charged; in many instances boulders of granite that have traveled from their original position contain none, whilst the mountain mass, from which they seem to have been torn, is largely charged with it. For instance, take the districts of Maneroo and Gipp's Land, in Australia, where you will find scattered over their extensive plains two distinct classes of boulders, both of which seem to have traveled many miles, and in some instances both seem to have arrived at pretty nearly the same place, but evidently by different routes, and most certainly at distinct and widely intervening periods of time. The oldest boulders are mostly polished, and some appear much ground, and are all in good preservation: in no one instance did they contain any gold when operated upon by my decomposing process, when tracing them to their apparent original source, — viz.: rocks forming part of the Snowy Mountain range, I found Nature was making great inroads upon them by rapid decomposition, but upon subjecting a portion of the solid rock to my process, it gave me gold. I likewise washed some of the debris from the bottom of a creek close by, from which I obtained little angular nodules of gold. As to the more recent boulders, most of those I tried contained gold. Many of these were under various stages of decomposition, and most likely owed their boulder origin to the decomposition of the external mass, and the spherical flakes which the frost is daily splitting off from the angular rocks that are constantly breaking away from the mountains from which they have been drifted.

When gold is found accompanying magnetic iron, wolfram, the surface oxides of tin or iron, ferruginous earths and clays, it will always be in its metallic state. Iron, antimony, blende, and several other opposite metals, will often precipitate gold in veins below the surface, provided there is some flookan, or other moist ground, accompanying the vein, to allow of a sufficient strength of electric current to throw down the metal.

Mercury will never touch gold in any other than its metallic state; and wherever mercury will obtain gold, it may likewise be obtained

by careful washing: there is no mystery in the subject, for if you have metallic gold in your ores it is one of the simplest matters to extract it.

As to roasting the ores, that is one way of getting rid of sulphur, arsenic, bismuth, and other volatile substances, so frequently found associated with gold; but it is likewise a capital mode of dissipating a great portion of the gold, if not all, and may never be performed with impunity, unless the gold is in the form of pure grains or strings. In nearly all cases where the gold is non-metallic, and even where it exists in its delicate and almost invisible feathery form, interlacing itself with some of the most treacherously volatile metals, it would be indiscrete to subject the ore to so violent an electric decomposition, as it would most certainly have to undergo in the calcining or roasting furnace.

I am sorry to see the subject of the chemical conditions and arrangements under which gold may be volatilised at a low temperature so little understood. The rocks and formations into which gold has been charged in its most subtle and hidden form are many of the limestones, shales, talcose, chloritic and other shists, quartz, gneiss, granites, and many of the formations, ranging from the carboniferous series downwards. Granites that have not been re-disturbed will never contain any; the syenites, and other recent hornblendic intrusions seem to have been the most prolific in charging their surrounding formations with gold. I have frequently found in the red surface earth near trapean rocks, and most veins carrying sulphur, that seem to be in any way distorted by it, will, with very few exceptions, contain gold in one or other of its delicate chemical forms.

[From the Placer Times & Transcript.]

LIFE AMONG THE MORMONS.

Mr. Wallace, the editor of the *Los Angelos Star*, writes as follows concerning this singular people whom he has recently visited at their stronghold in the County of San Bernardino, in this State. Outsiders who are possessed with anything like a spirit of candor, universally give them the name of having the best regulated, energetic, and honest communities that exist in any country, with the exception perhaps, of one practice of very doubtful morality, which is allowed, and by some of the more fanatical among them, even encouraged. Those who have had the misery of being put through a course of sprouts by some of those ingenious instruments of torture, San Francisco lawyers and Courts, will fully appreciate the good sense and sound judgment they display in starving such institutions out of their midst; this alone should excuse any amount of folly they might be guilty of in other respects.

It is not yet three years since the Mormons settled in San Bernardino. Then it was a mere range for cattle; but by organized industry and well directed labor, it has now become one of the most important and fruitful portions of the State. And the system

which prevails among them, in political matters, of voting one way — of uttering their sentiments as by the voice of one man, will, with their increasing numbers, give them great power. They are neither Whigs nor Democrats, and their practice is to go for their friends. By their unity in this respect, they are destined, in close contests, to control elections.

After a first visit among them, one is struck with the stillness and apparent dullness of the place; but this arises from the order of labor, which their system imposes upon every member. There are no idlers. Every one must produce according to his capacity. And all their labors go on in the most systematic manner. Some are ditching for the irrigation of the land; some are cutting timber in the mountains; others are hauling it to the plain; some are looking after stock; some are building; some trading. Every one doing something, with a view to permanent utility. Their property is not held in common, but the Church and each individual is benefitted by the labors of all the rest. So far as industry in the development of the resources of their lands is concerned, there is not a community in the State that can compare with them.

The ranch is situated at the mouth of the Cajon Pass, and all the travel hence to Salt Lake passes through the city. In the Cajon there is abundance of water for mills and for irrigation, and it is carried over the bottom lands in every direction, and will be brought through every street of the new city.

The old fort, with its ungainly proportions, will soon be abandoned. The new city, which is located a little to the east of it, is surveyed, and the lots are now offered for sale at an average price of one hundred dollars. There are already two or three handsome buildings erected, and several more are in progress. Bishop Crosby is about erecting a large hotel, which he means shall be an ornament to the city.

Their wheat crop at present is in fine condition, and if the season continues favorable, they will be able to supply a large proportion of the flour needed in this market. Last year they lost much of their wheat from rust, but their faith is strong that the blight will not now come near them.

The Mormons never go to law, and it is very evident that they do not wish any outsider to come among them for that purpose. They have an aversion for lawyers as stirrers up of litigation. No case has ever yet come before the State courts, in which the Mormons were parties. All their differences are settled in the "Bishop's Court," where each party choses a referee, and their decision is final. They have no jail, and when they find a criminal, they put him in chains and set him to ditching or some other public improvement. It does a man no good, they say, to confine him; besides, confinement is an expense to the community, and they cannot afford to support any man in idleness. The term of the District Court was held there on Monday; but the clerk being absent,

and the deputy excusing his attendance on the ground of sickness, the docket was transferred bodily to Los Angelos county.

The impression of some of the parties, was, that the Mormons did not wish to have their territory used for the settlement of the disputes of the ungodly: inasmuch as the example they set was not wholesome to a community whose lives are devoted to the building up of the Lord's kingdom on this earth.

There are many intelligent men and women among the Mormons; and if we are to believe them, they are the most happy community in the world. No thieves, no jails, no rowdies, and no grog shops. They serve the Lord in all their daily labors. The interests of the church is part and parcel of every contract. They hold on with great tenacity to the tenets of their faith, and to the revelations of the prophet Joseph, and have ever been ready to suffer for their faith's sake.

We put them down as polytheists, believing however in a great First Cause. They regard Adam as the god or governing spirit of this planet. Their belief in a state of future rewards and punishments, as explained to us, is this: That by a strict adherence to, and faithful performance of, all the requirements as revealed to them by the properly delegated authority, (what they term "obeying council,") they will reach a "state of exaltation" in a future world; in other words, will be made "kings and rulers over principalities and powers;" their wives and children being sealed or married to them in this world, as also their children's children unto the latest generation, thus enabling them to stand with dignity among the just made perfect, as head and ruler of a great generation. This is their chief "exaltation." The neglect of duty and the practice of the cardinal virtues in this world, is punished by witnessing the elevation of old associates, while they are compelled to move in a subordinate and subservient capacity. They believe that after death they are re-united to their wives and families, and occupy the same positions and engage in the same pursuits on this sphere, that they did while in the flesh.

They found their practice of polygamy upon the necessity of increasing their families, and this doctrine is strenuously advocated by intelligent ladies. But we will give these ladies the benefit of this remark—however sincere they may have been in their advocacy of this doctrine with us, they allow no divided affection in their own houses. These ladies proclaimed polygamy as a beautiful conformity to the laws of God. The happiness and unity of this people, as related to us by the few we were able to converse with, gave us pleasant impressions; but we could not help thinking that, could we have mingled with the masses, and listened to their tales, we might have heard things not so favorable. Polygamy may be good for population; but we do not believe it increases human affection, nor does it develope the "sweet little courtesies" which render social life agreeable. Mormonism may be good; but we believe in something better.

COMMERCIAL STATISTICS.

COMMERCE OF THE UNITED STATES.

General Statement of the value of goods, wares and merchandize, of the growth, produce and manufacture of the United States exported, commencing July 1, 1852, and ending June 30, 1853.

WHITHER EXPORTED.	TOTAL VALUE OF EXPORTS.			
	In American vessels.	In foreign vessels.	To each country.	To the dominions of each Power.
Russia	$1,805,048	$508,127	$2,313,175	$2,313,175
Prussia	.....	26,911	26,911	26,911
Sweden and Norway	441,742	391,791	833,533	864,557
Swedish West Indies	31,024	.....	31,024	
Denmark	39,757	43,146	82,903	996,384
Danish West Indies	492,184	421,297	913,481	
Hanse Towns	2,175,725	5,233,590	7,409,315	7,409,315
Holland	872,780	1,110,943	1,983,723	2,546,192
Dutch East Indies	192,757	10,065	202,822	
Dutch West Indies	230,697	20,561	251,258	
Dutch Guiana	104,112	4,277	108,389	
Belgium	2,117,447	183,591	2,301,038	2,301,038
England	67,083,830	45,694,528	112,778,359	13,582,112
Scotland	2,841,681	1,645,144	4,486,825	
Ireland	112,116	501,696	613,812	
Gibraltar	149,017	20,427	169,444	
Malta	121,532	43,787	165,319	
St. Helena	.....	11,189	11,189	
Cape of Good Hope	341,145	26,086	367,231	
British East Indies	492,667	.....	492,667	
Mauritius	.....	3,338	3,338	
Honduras	255,370	62,985	318,355	
British Guiana	660,964	107,877	798,841	
British West Indies	2,901,622	1,154,905	4,056,527	
Canada	1,789,512	2,216,000	4,005,512	
British American Colonies	823,900	2,574,675	3,398,575	
Australia	3,969,874	178,954	4,148,828	
Hanover	.....	6,290	6,290	
France on the Atlantic	22,829,999	1,438,293	24,268,292	25,556,059
France on the Mediterranean	801,477	51,037	852,514	
French Guiana	64,335	.....	64,335	
French West Indies	215,890	146,623	362,513	
Miquelon & other French Fish.	5,742	3,263	9,005	
Spain on the Atlantic	356,498	274,996	631,494	11,226,370
Spain on the Mediterranean	337,358	3,586,298	3,923,656	
Teneriffe and other Canaries	16,006	7,209	23,215	
Manilla & Philippine Islands	64,375	.....	64,375	
Cuba	5,538,813	234,606	5,773,419	
Other Spanish West Indies	737,330	73,081	810,411	
Portugal	132,599	91,052	223,651	369,757
Madeira	89,183	12,341	101,524	
Fayal and other Azores	21,307	.....	21,307	
Cape de Verd Island	23,275	.....	23,275	
Italy generally	1,616,354	557,391	2,173,745	2,173,745
Sicily	116,765	13,572	130,337	130,337
Sardinia	33,120	162,260	195,380	195,380
Tuscany	14,300	873	15,173	15,173
Trieste & other Aust. ports	1,434,668	627,815	2,062,484	2,062,484
Turkey, Levant, &c	207,358	.....	207,358	207,358

General statement of the value of goods, &c., Exported, &c.
Continued.

WHITHER EXPORTED.	TOTAL VALUE OF EXPORTS.			
	In American vessels.	In foreign vessels.	To each country.	To the dominions of each Power.
Hayti	$1,530,086	$208,327	$1.738,413	$1,738,413
Mexico	2,348,101	145,669	2,529,770	2,529,770
Central Republic of America	204,036	21,820	225,856	225,856
New Granada	726,978	26,413	753,391	753,391
Venezuela	696,160	53,699	749,859	749,859
Brazil	3,511,756	222,434	3,734,190	3,734,190
Oriental Republic of Uruguay	261,876	34,212	296,088	296,088
Argentine Republic	552,477	66,378	618,855	618,855
Bolivia	41,572		41,572	41,572
Peru	512,147	145,169	657,316	657,316
Chili	2,051,985	105,335	2,157,320	2,157,320
China	3,212,574		3,212,574	3,212,574
West Indies generally	90,271	7,854	98,125	98,125
South America generally	153,451		153,451	153,451
Asia generally	6,868		6,868	6,868
Africa generally	1,469,791	86,199	1,555,990	1,555,999
Indian Ocean	11,816		11,816	11,816
South Seas and Pacific Ocean	658,825	1,271	660,096	660,096
Total	142,810,026	70,607,671	213,417-697	213,417,697

F. BIGGER, Register.

TREASURY DEPARTMENT, Register's Office, December 22, 1853.

Summary statement of the value of the exports of the growth, produce, and manufacture of the U. S., during the year commencing on the 1st of July, 1852, and ending on the 30th of June, 1853, inclusive.

PRODUCT OF THE SEA.			
Fisheries—			
Oil, spermaceti		$1,418,845	
Oil, whale and other fish		223,247	
Whalebone		1,063,705	
Spermaceti candles		112,600	
Dried or smoked fish		371,607	
Pickled fish		89,409	
			$3,279,413
PRODUCT OF THE FOREST.			
Wood—			
Staves&heading,shingles,boards,hew'd tim.	$2,578,149		
Other lumber	123,743		
Masts and spars	129,628		
Oak bark and other dye	118,894		
All manufactures of	2,294,122		
Naval stores, tar, pitch, rosin, and turpentine	1,406,488		
Ashes, pot and pearl	334,321		
		6.985,345	
Gin seng		133,813	
Skins and furs		796,101	
			7,915,259
PRODUCT OF AGRICULTURE.			
Of animals—			
Beef, tallow, hides, horned cattle	2,214,554		
Butter and cheese	862,343		
Pork (pickled), bacon, lard, live hogs	6,202,324		

Summary statement of the value of goods, &c., Exported, &c.
Continued.

Horses and mules	246,731		
Sheep	17,808		
Wool	26,567		
		9,570,327	
Vegetable food—			
Wheat	4,354,403		
Flour	14,783,394		
Indian corn	1,374,077		
Indian meal	709,974		
Rye meal	34,186		
Rye, oats, and other small grain and pulse	165,824		
Biscuit or ship-bread	454,020		
Potatoes	152,569		
Apples	107,283		
Rice	1,657,658		
		23,793,388	
			$33,363,715
Cotton			109,456,404
Tobacco			11,319,319
Hemp			18,195
Other agricultural products—			
Flaxseed		7,719	
Hops		40,054	
Brown sugar		33,854	
Indigo		36	
			81,663
MANUFACTURES.			
Wax		113,602	
Refined sugar		375,780	
Chocolate		10,230	
Spirits from grain		141,173	
Spirit from molasses		329,381	
Molasses		17,582	
Vinegar		20,443	
Beer, ale, porter and cider		64,677	
Linseed oil		15,468	
Spirits of turpentine		347,492	
Household furniture		714,556	
Coaches and other carriages		184,497	
Hats		91,261	
Saddlery		48,229	
Tallow candles and soap		681,362	
Snuff and tobacco		1,671,500	
Leather, boots and shoes		673,708	
Cables and cordage		103,216	
Gunpowder		180,048	
Salt		119,729	
Lead		5,540	
Iron—			
Pig, bar and nails		181,998	
Castings		220,420	
All manufactures of		2,097,234	
Copper and brass, and manufactures of		108,205	
Medical drugs		327,073	
			8,844,404
Cotton piece goods—			
Printed or colored	1,086,167		
Uncolored	6,926,485		
Cotton—			
Thread and yarn, &c.	22,594		
All manufactures of	733,648		

Summary statement of the value of goods, &c., Exported, &c.
(*Continued.*)

Flax and hemp		
Cloth and thread	2,924	
Bags and other manufactures of	13,860	
Wearing apparel	239,733	
Earthen and stone ware	53,685	
Combs and buttoes	31,395	
Brushes of all kinds	6,612	
Billiard tables and apparatus	1,673	
Umbrellas, parasols and sun-shades	6,183	
Morocco&other leather not sold by the pound	6,448	
Fire-engines and apparatus	9,652	
Printing presses and type	32,250	
Musical instruments	52,397	
Books and maps	142,604	
Paper and stationery	122,212	
Paints and varnish	83,020	
Glass	170,561	
Tin	22,988	
Pewter and lead	14,064	
Marble and stone	47,628	
Gold and silver and gold leaf	11,873	
Gold and silver coin	23,548,535	
Artificial flowers and jewelry	66,397	
Trunks	27,148	
Brick and lime	32,625	
		33,515,361
Coal		336,003
Ice		175,056
Articles not enumerated		
Manufactured		3,788,700
Raw produce		1,324,205
Total		213,417,697

F. BIGGER, Register.

TREASURY DEPARTMENT, Register's Office, December 23, 1853.

Statement of the value of goods, wares, and merchandize imported into the United States from each country during the year ending June 30th, 1853.

WHENCE IMPORTED.	VALUE OF MERCAHANDISE FROM EACH COUNTRY.					
	Free of duty.	Paying Duties.	Total.	In American vessels.	In foreign ssel .	From the dominion of each power
Russia	$24,404	1,254,097	1,278,501	1,242,061	26,440	$1,278,501
Prussia	126	47,749	47,875	31,687	16,188	47,875
Sweden and Norway	870	446,462	447,332	182,577	264,755	454,208
Swedish West Indies	4,559	2,317	6,876	6,393	483	
Danish West Indies	21,594	162,903	184,497	151,931	32,566	184,497
Hanse Towns	64,483	13,778,972	13,843,455	8,193,304	5,650,151	13,843,455
Holland	115,227	1,509,943	1,625,170	462,641	1,162,529	
Dutch East Indies	326,675	57,908	384,583	321,106	63,477	2,549,619
Dutch West Indies	31,619	377,566	409,185	401,154	8,031	
Dutch Guiana	600	130,081	130,681	113,439	17,242	
Belgium	3,155	2,729,013	2,732,168	2,229,808	502,360	2,732,168
England	2,411,157	123,363,065	125,774,232	79,059,858	46,714,374	
Scotland	1,587	4,336,403	4,337,990	996,964	3,341,026	
Ireland	2,453	150,665	153,118	24,540	128,578	
Gibraltar		61,784	61,784	30,544	31,240	
Malta	1,960	78,093	80,053	44,800	35,253	
British East Indies	114,088	3,467,638	3,581,726	3,280,320	301,406	
Cape of Good Hope	1,101	301,202	302,303	226,820	75,483	143,219,478
British Honduras	37,360	230,938	268,298	259,132	9,166	
British Guiana	22,856	41,677	64,533	47,411	17,122	
New Zealand		241	241	241		
British West Indies	219,124	825,140	1,044,264	658,355	385,909	
British American Colonies	238,568	2,034,034	272,602	318,058	1,954,544	
Canada	1,179,682	4,098,434	5,278,116	2,714,256	2,563,860	
Hanover		218	218		218	
France on the Atlantic	322,327	30,529,222	30,851,549	28,702,062	2,149,487	
France on the Mediterranean	671	2,603,722	2,604,393	1,946,657	657,736	33,525,999
French Guiana	7,100	10,617	17,717	17,717		
French West Indies	29,161	29,179	52,340	25,698	26,642	

Spain on the Atlantic	11,531	624,115	635,646	418,742	216,904	
Spain on the Mediterranean	1,822	1,457,057	1,458,879	985,400	473,479	
Teneriffe and other Canaries	460	83,561	84,021	30,619	53,402	
Manilla and Philippine Islands	35,336	2,429,747	2,465,083	2,156,551	308,532	26,030,829
Cuba	258,467	18,327,288	18,585,755	17,685,745	900,010	
Other Spanish West Indies	36,362	2,764,574	2,800,936	2,240,264	560,672	
Portugal		411,155	411,155	130,042	281,113	
Madeira		77,598	77,598	61,236	16,362	
Fayal and other Azores		10,892	10,892	10,892		540,698
Cape de Verd Islands	15,416	25,637	41,053	41,053		
Italy	24,061	929,650	953,714	718,076	235,635	953,714
Sicily	27,931	835,420	863,351	373,260	490,091	863,351
Sardinia	1,591	169,989	171,583	19,718	151,865	171,583
Tuscany	13,120	843,497	856,617	768,937	87,680	856,617
Trieste and other Austrian ports	21,742	506,825	528,567	253,876	274,691	528,567
Turkey, Levant, &c	4,829	722,687	727,516	684,409	43,107	727,516
Greece		4,550	4,550		4,550	4,550
Hayti	1,640,752	344,872	1,985,624	1,615,067	370,557	1,985,624
Mexico	1,416,033	751,952	2,167,985	1,953,741	214,244	2,167,985
Central Republic of America	499,670	91,267	590,937	581,379	9,558	590,937
New Grenada	309,510	244,018	553,258	457,789	95,739	553,528
Venezuela	1,144,166	1,469,614	2,613,780	2,154,392	459,388	2,613,780
Brazil	11,859,166	2,958,795	14,817,961	11,302,753	3,515,208	14,817,961
Oriental Republic of Uruguay	4,447	298,533	302,980	239,585	63,395	302,980
Argentine Republic	23,989	2,162,652	2,186,641	1,553,256	633,385	2,186,641
Chili	394,902	1,819,350	2,214,252	1,823,357	390,895	2,214,252
Peru	96,029	77,412	173,441	131,564	41,877	173,441
Equador		12,600	12,600	12,600		12,600
China	8,180,165	2,393,545	10,573,710	10,355,995	217,715	10,573,710
Asia generally	59	32,662	32,721	32,721		32,721
Africa generally	162,915	1,040,071	1,202,986	1,175,934	27,052	1,202,986
South America generally	19,390		19,390	12,440	6,950	19,390
South Seas and Pacific Ocean		796	796	796		796
Atlantic Ocean and uncertain places		24	24	24		24
Sandwich Islands	3,150	13,425	16,575	16,575		16,575
Total	31,383,534	236,595,113	267,978,647	191,688,325	76,290,322	267,978,647

Statistical view of the commerce of the U. S., exhibiting the value nage of American and foreign vessels arriving from and departing

COUNTRIES.	COMMERCE. Value of Exports.		
	Domestic produce.	Foreign produce.	Total.
Russia	$2,313,175	$143,478	$2,456,653
Prussia	26,911	1,806	28,717
Sweden and Norway	833,533	18 735	852,268
Swedish West Indies	31,024	1,191	32,215
Denmark	82,903	.....	82,903
Danish West Indies	913,481	41,160	945,641
Hanse Towns	7,409,315	610,738	8,020,053
Holland	1,983,723	215,773	2,199,496
Dutch East Indies	202,822	180,884	383,706
Dutch West Indies	251,258	18,789	270,047
Dutch Guiana	108,389	17,694	126,083
Belgium	2,301,038	907,495	3,208,533
England	112,778,359	3,209,264	115,987,623
Scotland	4,486,825	154,739	4,641,564
Ireland	613,812	59,272	673,084
Gibraltar	169,444	66,570	236,014
Malta	165,319	22,237	187,556
British East Indies	503,856	63,542	567,398
Cape of Good Hope	367,231	3,141	370,372
Mauritius	3,338	.....	3,338
British Honduras	318,355	63,005	381,360
British Guiana	798,841	38,863	837,704
New Zealand	.....	.....	.....
British West Indies	4,056,527	106,081	4,162,608
BritishAmericanColonies	3,398,575	1,912,968	5,311,543
Canada	4,005,512	3,823,587	7,829,099
Hanover	6,290	.....	6,290
Australia	4,148,828	138,174	4,287,002
Falkland Islands	.....	.....	.....
Other British Possessions	.....	71,069	71,069
France on the Atlantic	24,268,292	1,380,647	25,648,939
France on the Mediterran	852,514	70,331	922,845
French West Indies	362,513	35,738	398,251
Miquelon & FrenchFisher	9,005	.....	9,005
French Guiana	64,335	1,104	65,439
Bourbon	.....	.....	.....
French possess. in Africa	.....	.....	.....
Spain on the Atlantic	631,494	15,551	647,045
Spain on the Mediterran.	3,923,656	34,297	3,957,953

of exports to and imports from each foreign country, and the ton- to each foreign country, during the year ending June 30, 1853.

	NAVIGATION.			
Value of imports.	American tonnage.		Foreign tonnage.	
	Entered the U. S.	Cleared from the U. S.	Entered the U. S.	Cleared from the U. S.
$1,278,501	10,455	11,958	1,013	5,297
47,875	374	.....	.....	293
447,332	3,563	3,217	13,552	6,153
6,876	1,184	1,136	53	.....
.....	350	332	.....	2,174
184,497	11,618	14,032	4,965	9,571
13,843,455	36,561	26,995	138,788	85,281
1,625,170	10,776	10,302	15,074	20,730
384,583	2,864	3,526	1,252	6,605
409,185	17,590	5,988	3,602	409
130,681	5,110	6,218	1,129	402
2,732,168	28,845	25,124	10,931	4,192
125,774,232	826,453	664,892	435,830	429,176
4,337,990	25,892	27,734	76,899	32,612
153,118	2,736	3,482	41,238	14,355
61,784	.....	5,242	966	1,330
80,053	830	2,721	936	741
3,581,726	38,270	50,461	3,908	6,309
302,303	2,041	4,705	901	983
.....	.....	.....	.....	325
268,298	4,418	5,111	1,794	3,320
64,533	4,211	14,426	1,550	3,181
241	.....	.....	.....	.....
1,044,264	77,587	101,808	49,245	45,424
2,272,602	112,335	266,431	395,693	583,465
5,278,116	1,376,927	1,062,086	748,084	743,029
218	.....	.....	630	96
.....	442	56,944	5,060	13,034
.....	150	.....	.....	.....
.....	589	723	1,184	797
30,851,549	174,748	184,947	31,045	11,127
2,604,393	15,168	16,234	6,921	3,761
52,340	4,047	13,262	3,702	4,741
.....	.....	391	205	1,215
17,717	530	1,275	323	.....
.....	.....	.....	.....	639
.....	.....	193	.....	800
635,646	14,469	10,768	2,924	6,229
1,458,879	14,562	7,600	14,489	38,130

Statistical view of the commerce of the

COUNTRIES.	COMMERCE.		
	Domestic produce.	Foreign produce.	Total.
Teneriffe & other Canaries	23,215	1,000	24,215
Manilla & Philippine Isl.	64,375	1,000	65,375
Cuba	5,773,419	514,540	6,287,959
Porto Rico & oth. Sp. W. I.	810,411	54,143	864,554
Portugal	223,651	26,552	250,203
Madeira	101,524	15,574	117,098
Fayal and other Azores.	21,307	4,440	25,747
Cape de Verd Islands	23,275	1,604	24,879
Italy generally	2,173,745	159,833	2,333,578
Sicily	130,337	24,818	155,155
Sardinia	195,380	27,926	223,306
Tuscany	15,173	22,640	37,813
Pontifical States			
Ionian Islands			
Trieste & other Aust. ports	2,062,484	171,804	2,234,288
Turkey, Levant, &c.	207,358	79,981	287,339
Greece			
Hayti	1,738,413	260,520	1,998,933
Mexico	2,529,770	1,029,054	3,558,824
Central America	225,856	120,474	346,330
New Grenada	753,301	103,079	856,470
Venezuela	749,859	94,668	844,527
Bolivia	41,572		41,572
Brazil	3,734,190	260,254	3,994,444
Orien. Repub. of Uruguay	296,088	12,358	308,446
Argentine Republic	618,855	262,611	881,466
Chili	2,157,320	169,117	2,326,437
Peru	657,316	40,261	697,577
Equador			
China	3,212,574	524,418	3,736,992
Asia generally	6,868		6,868
Liberia			
Patagonia			
Africa generally	1,555,990	54,843	1,610,833
South America generally	153,451	27,060	180,511
South Seas	660,096	36,559	696,655
Pacific Ocean			
Atlantic Ocean			
Indian Ocean	11,816		11,816
Sandwich Islands		29,406	29,406
Northwest Coast			
West Indies generally	98,125		98,125
Uncertain places			
Total	213,417,697	17,558,460	230,976,157

United States, &c.—(Continued.)

Value of imports.	NAVIGATION.			
	American tonnage.		Foreign tonnage.	
	Entered the U. S.	Cleared from the U. S.	Entered the U. S.	Cleared from the U. S.
84,021	1,641	1,046	2,318	1,235
2,465,083	16,697	20,598	4,541	2,003
18,585,755	455,700	385,892	37,362	22,730
2,800,936	47,838	30,815	15,844	9,429
411,155	3,314	5,476	5,973	8,696
77,598	1,942	3,707	369	348
10,892	1,691	1,777	.....	.....
41,053	901	2,181	1,153	.....
953,714	.....	.....	.....	.....
863,351	25,545	5,397	19,036	2,777
171,583	400	11,821	4,656	7,018
856,617	16,596	2,192	1,226	224
.....	.....	218	.....	.....
.....	149	149	.....	.....
528,567	2,660	11,735	2,702	9,244
727,516	7,592	4,365	558	.....
4,550	.....	.....	116	.....
1,985,624	33,262	31,369	10,402	6,124
2,167,985	23,046	30,810	25,255	15,804
590,987	68,302	80,737	2,543	3,172
553,528	199,599	205,602	5,095	3,840
2,613,780	17,142	12,001	4,795	1,789
.....	.....	277	225	.....
14,817,961	73,160	69,735	24,447	5,158
302,980	2,319	8,700	1,341	1,356
2,186,641	11,337	10,749	4,741	4,639
2,241,252	13,641	23,488	38,511	38,655
173,441	14,965	63,246	17,558	37,410
12,600	503	226	.....	249
10,573,710	65,899	66,041	26,965	24,808
32,721	.....	.....	.....	.....
.....	546	1,616	.....	.....
.....	582	514	416	.....
1,202,986	12,410	15,162	708	1,468
19,390	.....	434	.....	.....
796	3,998	3,143	696	1,132
.....	28,077	31,614	.....	5,819
24	3,762	7,788	.....	.....
.....	3,203	4,820	.....	686
16,575	18,111	20,260	3,914	4,118
.....	767	656	628	1,333
.....	.....	.....	.....	.....
.....	1,021	568	.....	.....
267,978,647	4,004,013	3,766,789	2,277,930	2,298,790

Statement of the commerce of each State and Territory,

STATES.	VALUE OF EXPORTS.			
	DOMESTIC PRODUCE.			FOREIGN
	In American vessels.	In foreign vessels.	Total.	In American vessels.
Maine	$1692412	$69517	$1761929	$273783
New Hampshire	250	876	1126	.....
Vermont	82376	.....	82376	11741
Massachusetts	11497123	5398181	16895304	1760970
Rhode Island	300228	2226	302454	7864
Connecticut	497769	.....	497769	11665
New York	46217717	19812638	66030355	8364727
New Jersey	.....	1354	1354	.....
Pennsylvania	4687269	1567960	6255229	206089
Delaware	.....	.....	.....	.....
Maryland	4782518	2985706	7768224	107056
District of Columbia	75456	.....	75456	.....
Virginia	2119435	1183126	3302561	4230
North Carolina	193870	120272	314142	.....
South Carolina	6459491	8940917	15400408	.....
Georgia	4953557	2418326	7371883	.....
Florida	1046921	651285	1698206	.....
Alabama	9916652	6870261	16786913	.....
Louisiana	47628019	20140705	67768724	459304
Mississippi	.....	.....	.....	.....
Tennessee	.....	.....	.....	.....
Missouri	.....	.....	.....	.....
Ohio	103807	54611	158418	.....
Kentucky	.....	.....	.....	.....
Michigan	224977	70832	295809	9512
Illinois	79139	.....	79139	.....
Texas	251040	318878	569918	446382
California	.....	.....	.....	.....
Oregon	.....	.....	.....	.....
Indiana	.....	.....	.....	.....
Minnesota	.....	.....	.....	.....
Total	142810026	70607671	213417697	1663323

from July 1st, 1852, to June 30th, 1853.

PRODUCE.			VALUE OF EXPORTS.		
In. ei n ls'	Tot n.	Total American & foreign produc .	In American vessels.	In f reign vessels.	Tot .
$5075	$278858	$2049787	$1254039	$132550	$1386589
.....	.....	1126	24752	7856	32608
.....	11741	94117	184512	.....	184512
1299002	3059972	19955276	35910403	15457553	41367956
167	8031	310485	261719	104397	366116
.....	11665	509434	474297	71496	545793
3811208	12175935	78206290	132009768	46261231	178270999
.....	.....	1354	.....	3539	3539
66678	272767	6527996	10454563	8379847	18834410
.....	.....	.....	.....	.....	.....
31179	138235	7906459	5235659	1094419	6330078
.....	.....	75456	70086	1408	71494
.....	4230	3306791	255363	143641	399004
.....	.....	314142	125779	145459	271238
.....	.....	15400408	1199780	608737	1808517
.....	.....	7371883	275968	232293	508261
.....	.....	1698206	18132	47302	65434
.....	.....	16780913	297453	512109	809562
64630	523934	68292658	10856058	2774628	13630686
.....	.....	.....	5876	.....	5876
.....	.....	.....	256846	.....	256846
.....	.....	.....	859654	.....	859654
.....	.....	158413	750598	97162	847760
.....	.....	.....	175358	.....	175358
48364	57576	353685	207782	3448	211230
.....	.....	79139	7559	.....	7559
13381	459763	1029681	156144	125315	281459
.....	.....	.....	101312	.....	101312
.....	.....	.....	.....	85932	85932
.....	.....	.....	258253	.....	258253
.....	.....	.....	612	.....	612
5389684	17003007	230420704	191688325	76290322	267978647

TRADE BETWEEN ST. LOUIS & THE SOUTH: TENNESSEE RIVER, HICKMAN, KY., ARKANSAS RIVER, ETC.

Why is it that the enterprising merchants of St. Louis have never made a reasonable effort to extend their trade in a southern direction? This question has been frequently asked by the people and press of the south, but remains unanswered.

The trade of the Tennessee river embracing the fertile and wealthy region of North Alabama, is monopolized by Louisville and Cincinnati — chiefly by the former. This trade employs some half dozen boats, engaged chiefly in the transportation of commodities, which could, or ought to be obtained upon better terms at St. Louis than at either Louisville or Cincinnati. And, besides, the distance from the mouth of the Tennessee to St. Louis is shorter and the navigation much better than to the markets on the upper Ohio. The people of the valley of the Tennessee, and especially those of ma, appreciate these facts; but commercial relations having been long established between that region and the cities on the Ohio, it requires that advances should be made by the merchants of St. Louis, and facilities of transportation offered, before a diversion can be made in this direction.

The trade of the Arkansas River is principally in the hands of Cincinnati and other cities on the Ohio: St. Louis has no boat either in the Tennessee or Arkansas trade. We respectfully ask the merchants and manufacturers of St. Louis, if they can look upon the map and observe the extensive ranges of these rivers without feeling a desire to participate in the commerce which their rich valleys afford?

But it seems that the merchants of St. Louis have not only neglected to avail themselves of the trade of the southern tributaries of the Mississippi, but have even overlooked the trade of important commercial points situated on the main river between this place and New Orleans where their boats pass daily.

We have upon former occasions, but without effect, endeavored to awaken the attention of the merchants and manufacturers of St. Louis to this subject: it has been suggested at the present time by the following article which we copy from the *Hickman Times:*

"HICKMAN AND ST. LOUIS TRADE.—It has, for a long time, been a matter of some surprise to us that there is so little business intercourse between St. Louis and Hickman. While, for several years past, the Merchants and Grocers of Hickman have purchased annually, in Cincinnati, not less than half a million of dollars worth of goods and groceries, the purchases in St. Louis have not amounted in any one year, to twenty thousand dollars.

Why is this? Our facilities for transacting business with St. Louis, are far better than with Cincinnati; for several months in the year we are cut off almost entirely from Cincinnati, by low water, while we are never cut off from St. Louis. In high water even, the packets are usually from two to three days running from Cincinnati here. Twenty-four hours from St. Louis is a long time in high or low water. Full six weeks ago, we ordered printing paper from Cincinnati, we have not received it yet; from St. Louis, a week from the day we sent the order would have been an unnecessary delay. What then is it? It certainly cannot be, because, the merchants of Cincinnati are prepared to give better bargains than those of St. Louis; for there are merchants in the latter city doing business upon as much capital, and having as extensive a trade, as in Cincinnati; and the facilities for importing or manufacturing in St. Louis, are just as good if not better than in Cincinnati.

There have been a variety of causes, operating to effect this thing, one of the principal of which was the ruinous rates of discount charged upon Tennessee money, (our principal currency.)

The merchants of Cincinnati have been taking Kentucky money at par, and Tennessee money at one per cent. discount. The merchants of St. Louis, have at the same time been charging from one to one and a half per cent. discount upon Kentucky money, and two and a half on Tennessee money. This our merchants could not afford to pay, and this has been one of the chief causes of driving the trade to Cincinnati.

Another great reason is, that the people of St. Louis, although knowing that Hickman was the most important point between their city and Memphis, have made no efforts whatever, to secure the trade; they have not tried to make themselves known to the people here, either by advertising or otherwise, and the consequence is, that our people, when they wish to purchase an article in St. Louis, dont know who to send to for it. Now whether an annual trade of half a million of dollars is worth an effort, upon the part of St. Louis or not, we leave for them to decide, particularly, when that trade is increasing, and must continue to increase as rapidly as the trade of Hickman. We simply state facts, and they can and will govern themselves as they see best, after these facts are laid before them. We are desirous of seeing a trade built up between St. Louis and Hickman, and shall have more to say in this connexion hereafter."

Hickman is comparatively a new town; it commands the trade of a fertile district of considerable extent. Its enterprising citizens are engaged in constructing a railroad to connect with the Nashville and Northwestern Railroad, and also with the Mobile and Ohio Railroad; and the time is not far distant when it will be in connection with the great railroad systems west of the Mississippi. In the hands of an enterprising population, Hickman must become a very important city and it is the true policy of the people of St. Louis to establish commercial relations with it before its trade is monopolized by others.

JOURNAL OF PUBLIC IMPROVEMENT.

PACIFIC RAILROAD: CENTRAL ROUTE.

We are pleased to learn that the citizens of California are beginning to look in the right direction for a railroad route to connect them with the States east of the Rocky Mountains. Hitherto the weight of the California influence seems to have inclined in favor of the southern route; but the following proceedings of a convention held at Red Bluffs afford evidence that broader and more statesman-like views are beginning to prevail in that region.

[From the Placer Times and Transcript.]

PACIFIC RAILROAD CONVENTION AT RED BLUFFS.

Red Bluffs, June 3d, 1854.

Pursuant to public notice, published through the press, a Convention composed of delegates appointed by the people in the several counties, to give a proper expression to their opinions and wishes in relation to the route by which the Pacific Railroad should enter the State, met at 10 o'clock, A. M., on the above date. On motion of E. Garter, Hon. J. W. McCorkle was elected President, and Jas. McClatchey and G. E. Winter Secretaries.

The Convention closed its labors by the adoption of the following resolutions:

Whereas, The grand question of connecting the Atlantic and Pacific oceans, by means of a railroad across the continent, is now considered as a determined fact—sure to be accomplished—by the mighty energies of the American people; and Whereas, The selection of a route for this great scheme, which is national in its character, is still undetermined; and Whereas, Appropriation has already been made by Congress, and expended for the survey of routes whose practicability and adaptation to the commerce and wants of our growing country, are entirely problematical, and whose claims to favor at the hands of the whole nation, rest upon the sole basis of the moneyed and political influence of the few, and

Whereas, We deem it a matter of supreme importance to the State of California, that a great highway, connecting us with our sister States, should embrace, among its main objects—first, the most practicable, second, the most direct, third, the most central route, in order to subserve, to the greatest possible extent, the purposes of the great mass of the American people, as well as of the government; and Whereas, A central route will actually traverse the greatest extent of inhabitable and fertile territory, both east and west of the Rocky Mountains, and would thereby afford the greatest facility to the settlement and protection of our now vast but wilderness domain:

Therefore, be it Resolved, That we endorse and recommend the selection of a central route, through the great South Pass, and in order to accomplish this great object, we ask the co-operation of Oregon, whose wants are identical with our own, as well as the co-operation of the great masses of the people of our own State, settled upon the

waters of the Pacific, in setting forth the advantages, the practicability, and the claims, of the route known as Nobles' Pass, in a proper and authentic manner, before Congress and the American people.

Resolved, That we hold the accomplishment of this great undertaking to be of pre-eminent importance, in preserving a good understanding, and thereby cementing the bonds which unite the sisterhood of States which compose our happy country; and that we will not oppose any particular route, after a fair and thorough survey shall have settled the question of selection.

Resolved, That we consider the project of constructing a Railroad from the Eastern to the Western boundaries of the Republic, a great National work, demanded as a means of defence in time of war, and in peace as a bond to unite the States, and practically important in all respects, to their common defence and general welfare.

Resolved, That the State of California and the Territories on the Pacific, to the north, as regards their present and prospective resources and population, will be incalculably more benefitted by a railroad through Noble's Pass, which would strike at the same time the head waters of the Sacramento river, flowing to the south, the Umpqua, Willamette, and Columbia, to the north, and following these great natural highways, sweep down the entire length of the three largest and richest valleys in America, to the Pacific ocean, terminating at the mouth of the Columbia at the north, and the Bay of San Francisco at the south.

Resolved, That in the opinion of this Convention, it is necessary at this time that the people of the United States and the General Government at Washington be fully aroused to the importance of the route by "Nobles' Pass," for the line of the great Atlantic and Pacific Railroad, and that an immediate organization of Committees in the several northern counties of this State be had, for the purpose of collecting information in regard to said route, and urging upon the government its immediate survey—and that they be requested to forward the same to Gen. Allen, the Chairman of the General Committee, for publication.

Resolved, That we hail with much satisfaction the information recently received, that Congress has appropriated money for the survey of the route through "Noble's Pass," and that although it be but tardy justice to the northern portion of the State, we are yet none the less thankful that Congress has made a beginning in this important work, and can but express our earnest hope that the proper Department will order the work to be immediately commenced; and we most solemnly protest against the location of the railroad before the engineers shall have had time to report on its merits.

Resolved, That we respectfully but firmly protest against the policy of granting any portion of the public domain within this State (except so much thereof as may be necessary for tracks, turnouts, and stations for the use of the road,) to any party or parties to aid them in the construction of such road, as such a policy would prevent a large portion of our agriculturists from receiving those benefits intended to be conferred upon them by our liberal pre-emption laws—would place the most of the soil of our State in the hands of non-resident capitalists, and permanently retard the growth and settlement of the country.

Resolved, That the delegation from each county represented in this convention, appoint one person in their several counties, to act in concert with the persons selected as committeemen of other counties whose duty shall be to raise by contribution money, and to cause to be surveyed, the route through "Noble's Pass," in case the survey of the same is not commenced by the General Government within three months from this date, and that the Chairman of said committee be instructed to correspond with the proper Government officers in relation to said survey.

Resolved, That by centrality of a route for a railroad, we mean central, not with regard to our own State, but central as regards the whole territory of the United States on the Pacific coast.

On motion, the resolutions were taken up *seriatim*, and each adopted unanimously, without debate—save the third, which was amended to read as it now appears, and the seventh, which Mr. Geiger moved to strike out, giving his reasons therefor. This motion was opposed by Messrs. Bryan, McClatchey, and Harrison, and the vote was taken and the motion declared not carried. The question then recurred upon the adoption of the seventh resolution, upon which the ayes and nays were called, and resulted in the affirmative, only two dissenting.

The preamble and resolutions were then adopted as a whole, with but one dissenting voice.

On motion of Maj. Bidwell it was then

Resolved, That the delegates from each of the counties represented select a member of the committee provided to be raised by the eighth resolution.

The Convention then took a recess of five minutes.

On the reassembling of the Convention the following gentlemen were named as those chosen for such committee:

Yuba, Gen. James Allen; Sacramento, Col. F. Forman; Shasta, Maj. B. P. Reading; Butte, Judge J. W. McCorkle; Colusi, Capt. D. Finch; Trinity, J. Comstock; Siskiyou, John D. Crosby.

On motion of Mr. McMurtry, Gen. James Allen, of Yuba, was selected as chairman of the committee.

On motion of Mr. Fairfax it was then

Resolved, That Maj. P. B. Reading, John Dreibelbis, W. Harrison, G. W. McMurtry, and Col. Toomes, are hereby appointed a committee, and requested to accompany the corps of engineers, when they make an exploring and surveying examination of "Noble's Pass."

On motion of Mr. Bryan, it was next

Resolved, That the different newspapers of the State be requested to publish the proceedings of this Convention.

The thanks of the Convention were tendered to A. A. Stout, Esq., for his kindness in furnishing a room for its sittings, and

The Convention adjourned *sine die*.

J. W. McCorkle, President.

James McClatchy, } Secretaries.
G. E. Winters, }

The influences which have been brought to bear upon the extreme northern and southern routes for a Pacific railroad have for a time diverted the public mind from the investigation of the true merits of a

central location. But we are persuaded that the report of the engineer will put an end to the northern project, and force the northern influence upon the central line. In support of the opinion that the northern route will be abandoned we quote from the Nebraska Palladium what Col. Lander is reported to have said in his public address at Council Bluffs. Col. Lander went out with Gov. Stevens on the northern route, and re turned up the valley of the Columbia. He says:

"I cannot think there are ten men in Oregon, who believe that the line adopted for the great national thoroughfare will be that surveyed during the last season, under the direction of Gov. Stevens, generally termed the Northern Route, and passing from St. Paul, Minnesota, north of the Missouri river, and along the British frontier, to Puget's Sound. Having examined that line in my professional capacity, I am fully prepared to speak of its character. In the vicinity of the Mississippi river it possesses advantages over all other Pacific routes by traversing a rich timber country; regarding the scarcity of timber in the interior, this is a desideratum and gives a high character to the line. Beyond this advantage, the Northern line, (which to the first range of mountains is of so favorable a character, as to justify any encomium,) does not compare as a Railroad route with that I have recently examined. I believe the route up the Platte river valley to be peculiarly favorable for cheap construction. From a point thirty miles west of the Missouri river, a single plane of surface extends for 500 miles without a break or declivity. The soil is of such a character, that by skirting the Sand Bluffs on the north side of the river, all necessity for ballasting or dressing the road bed is avoided. Brooks of clear water, having their sources in these bluffs, and at such an elevation above the level proposed for the Rail, as to afford every facility for the use of locomotives.

I have no doubt that the perfect drainage, afforded by a soil of such a character would allow the use of the Rail for long distances, without grading. I believe that nowhere on the American Continent, occur such facilities for cheap and speedy construction for the immediate completion of a road, or at least the earliest possible opening of a line of transportation to the interior. This is a fact of the greatest importance. One of the chief obstacles to the construction of a Railroad within a reasonable period of time will be the difficulty of transporting supplies and the necessary appliances for grading, to the several mountain sections of the interior. The line up the Platte offers every advantage for overcoming this obstacle by affording such facilities for an immediate use of the Rail in a preliminary track. I have already stated that the citizens of Washington and Oregon Territories have manifested a lively interest in the Pacific Railway question—that they believe the adoption of the Platte Valley route will exert an important influence upon the future, and that they have no hopes of the con-

struction of an extreme northern line. I left Olimpea, or Puget's Sound, in March carrying (by unanimous vote,) a full indorsement of both branches of the Legislature of Washington. I have been deeply interested in the success of this reconnoisance, and am abundantly repaid for some months of severe labor by this full and successful result. I have ascertained the fact, that an excellent Railroad line exists between the waters of Missouri river and Puget's Sound; also that a very practicable, cheap, and favorable line exists between Salt Lake City and Puget's Sound, and am able to fully demonstrate the latter proposition by reliable data."

ARKANSAS MIDLAND RAILROAD.

The friends of this enterprise performed the ceremony of breaking ground as the commencement of the work at Helena, on the 4th instant.

The *Helena Star* of the 5th says, "our citizens, full of national and State pride, turned out, without distinction of age or sex, to participate in the festivities of the occasion." A public address was delivered by James T. Crary, Esq., orator of the day, and speeches were made by several other gentlemen in response to the call of the Assembly. "After dinner was served up, Major Richard Davidson, surrounded by the enthusiastic assembly, took his spade and threw up the first sod on our railroad. This pleasing duty could not have been assigned to one more worthy. The great work was commenced with the utmost enthusiasm—long, loud and continued applause cheered and animated this interesting scene.

We sincerely hope that the enthusiasm manifested upon this interesting occasion will not abate until the road is completed. Let the "Midland Road" be built only to the city of Little Rock, and it will ensure the construction of other roads terminating at Helena, which will place it in connection with the great systems of public improvements east and west of the Mississippi.

Though we regard a direct connection with Memphis, by railroad, as necessary to complete the Missouri system of public improvement, we are still persuaded that the true route from St. Louis to New Orleans is that which crosses the Mississippi at Helena, and that, in obedience to the laws of commerce, this line must, sooner or later, be constructed.

MISSISSIPPI, OUACHITA AND RED RIVER RAILROAD.

This road was inaugurated at Camden, on the 4th instant, with the usual ceremonies—public addresses, breaking ground, feasting, &c. Though local in its character, this work will be one of immense benefit to Western Arkansas and Eastern Texas, and we trust its friends will find the means necessary to its speedy accomplishment.

JOURNAL OF MANUFACTURES AND MINING.

IMPORTANT INVENTION FOR ROLLING RAILROAD BARS.

Mr. Wm. Harris, late of the Rolling Mill firm of Harris, Burnish & Co., of this place, has just completed an invention for the manufacture of Railroad Iron, which in the opinion of our ablest mechanics is likely to give a fresh impetus to the Iron Manufacture, and to effect corresponding changes throughout the entire trade. It consists in a new method of arranging the rolls, and cannot fail wherever understood, to entirely supplant the old process. Mr. H. is a practical iron manufacturer, and has been actively engaged in the business for the greater part of his life. He is now about 34 years of age. His attention has for many years been given to an improvement of this kind, manifestly so much needed.

By the old (present) plan, each pair of rolls has nine separate grooves, through which the heated mass from the furnace is successively passed, until it is delivered from the last in the shape of a railroad bar. Much manual labor is required; and even with the most skilful and expeditious workmen, the metal has time to cool very considerably before it is finished, thereby becoming less malleable, and causing a dangerous strain upon the machinery. The breaking of a Roll in such a mill, it is well known, is but a common occurrence.

Now, instead of the one set of Rolls, containing the nine grooves; by the *new* process, there are nine separate pairs of Rolls, each having but one groove—arranged in one continuous line, with close ducts or boxes between; so that the "pile" (the hot ball of metal) is fed in at one end, and comes out at the other a railroad bar! The principal advantages claimed are—economy of time, and saving of manual labor—highly important considerations, as all iron manufactures well knew.

Let us compare (and our data throughout, it may be proper to remark, are not mere guesses, but have been ascertained by accurate calculations): By the old process, a bar of 21 feet, the usual length, is manufactured in 2½ minutes; by the new, in the same time, one of

100 feet could be run out, if the "pile" could be prepared; or with the speed proposed for the new machinery, a bar 30 feet long may be finished from the "pile" in 30 seconds!

By the old plan, 10 men and boys are ordinarily employed in the rolling process alone—by the new, but one; and his business would be solely that of superintendence — there would be no manual labor for him. For instance, the Heater brings his "pile"—it is put in at one end of the continuous line of Rolls, and requires no farther manipulation till it is delivered, a railroad bar at the other.

Another prime advantage claimed for the new process is the manufacture of the "Red short" iron into railroad bars. This species of iron, it is well known to manufactnrers, possesses a peculiar brittleness when hot, that renders it difficult if not impossible, to work by the old process, though remarkably tough when cold—having a long fibre and making the best of railroad iron. On the new plan, the time occupied in the manufacture of a bar is so short, that the metal can easily be retained at a workable temperature during the entire process. This will undoubtedly tend greatly to improve the general character of railroad iron; as the "cold short," now mostly employed for that purpose (because it is most easily worked,) becomes exceedingly brittle when cold, being in very many cases not much better in that respect, than common pig metal.

The new machinery used is of the simplest mechanical construction, and not at all likely to break or get out of order. It consists mainly of a horizontal shaft, to which are attached, by plain level gearing, the several Rolls, some revolving vertically and others laterally (in order to compress the metal on all sides.) The Rolls are set apart at distances corresponding with the successively increased lengths of the "pile," in its passage through them—the first four or five being comparatively close together. Hence the entire length of the line of Rolls, for manufacturing bars, say 21 to 30 feet long, would not exceed 100 feet. No more power is required than in the old process, as the metal is acted upon but by one Roll at a time; and not near so much toward the finishing, as in the old process, as the metal has by that time cooled very much and, of course, is less malleable; while by the new, the whole operation is performed so speedily, that the temperature of the metal is very little reduced.

A *Caveat* was filed at Washington some time last winter, and application for a patent for the invention is now pending in the names of Messrs. Harris & Geo. Bright. A model may be seen at the hardware store of the latter in this place.

As to the cost of a mill, constructed with the new Rolling machinery, a liberal estimate places it at about 15 to 20 per cent. more than the present expenditure; but the new Rolling apparatus *alone* will not cost more than 10 per cent. over the price of the present Rolls. The other increased expense results from the additional number of improved capacity of the furnaces, necessary to supply the new Rolling machinery; and of course is to be considered in connection with the proportional increase of manufacture. This will become plain by a simple calculation: A mill constructed on the old plan can work up about 70 tons of metal in 24 hours; that is, in the largest establish-

ments, with the best of machinery and the most experienced workmen. But, with the new Rolling gear, 120 tons can be manufactured in 12 hours; or nearly four times as much—yet the yield in both cases being limited by the rolling power. The principal difference, so far as cost is concerned, after the new Rolling apparatus is introduced, is in the additional number of furnaces required to keep it going.

There are other incidental advantages connected with this invention that we have not attempted to enumerate — we may have occasion to allude to it hereafter. The model has been examined by a great many persons, and the actual process of manufacture performed with small bars of cold lead. The general opinion expressed is admiration and implicit confidence in its success. We commend it specially to the notice of Iron Manufacturers throughout the country.—(*Pottsville Journal.*

ANGEL CHILD.

"Of such is the Kingdom of Heaven."

The death of a child awakens an emotion of grief which is concentrated in the heart of its parents, but which is seldom deeply diffused throughout the circle of even their intimate friends, much less through the mass of society. The world does not mourn for those who die young, yet it is often said that they are the ones "whom the gods love," that "of such is the Kingdom of Heaven."

Why should not the death of a child awaken a deeper feeling? Why should the world be indifferent to those whom the gods love? Why should mankind pay so little respect to the emblems of the Kingdom of Heaven?

Hallowed are the hours of childhood; hallowed its associations, its innocence, its singleness of heart, its love, its joy, its Angel-guarded existence. God grant that its freshness of feeling, like the waving of Angel-wings beside the well of everlasting life, may be prolonged in harmony with the experience of years—that "Arcadia may be always in man, and man always in Arcadia."*

These reflections were suggested on the perusal of the following beautiful lines, full of tones of tenderness, coming from a heart overflowing with that freshness of feeling which indicates the Arcadian life of truth and poetry enjoyed by the fair authoress.

With naive and charming modesty she says:

* Jean Paul.

"These simple lines came impromptu from my heart upon learning the death of little Georgie. That they are very imperfect I am aware, but they express so *truthfully my feelings*, I cannot refrain from offering them to his dear afflicted mother."

It is a tribute of consolation to the bereaved mother, wife of Dr. P——, of St. Louis, on the death of their only child.

Dear little babe! thy while on earth
Was like a flower of noon-day birth,
Too delicate and sweetly fair
To live, tho' nursed with tenderest care.

The purity and winning grace
And smile which lit thy fair young face,
Seemed but a loan from angel-hand,
Best fitted for the "spirit land."

We should not wish thee back, sweet child,
Tho' oft thy loveliness beguiled
Our thoughts from care, and toil, and strife,
And pointed to eternal Life.

'Twere sin to call thee from that choir,
Where now thou tun'st an Angel's Lyre,
'Tho' ne'er will fall on mother's ear,
Again the tones she joyed to hear.

Then rest thee, little one, above,
Where all is one bright scene of love;
The same High Power which gave thee birth,
Took thee, in wisdom, back from earth.

LEXINGTON, KY., 1854. LETTIE.

MEMORY OF FRIENDS.

BY HARRY.

A varied scene, with lakes and brooks,
Is pleasant to the eye;
And clouds and birds look light and gay,
While flying through the sky—
A garden filled with flowers and shrubs,
To life a pleasure lends,
But pleasanter than tongue can tell
Is the Memory of Friends.

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